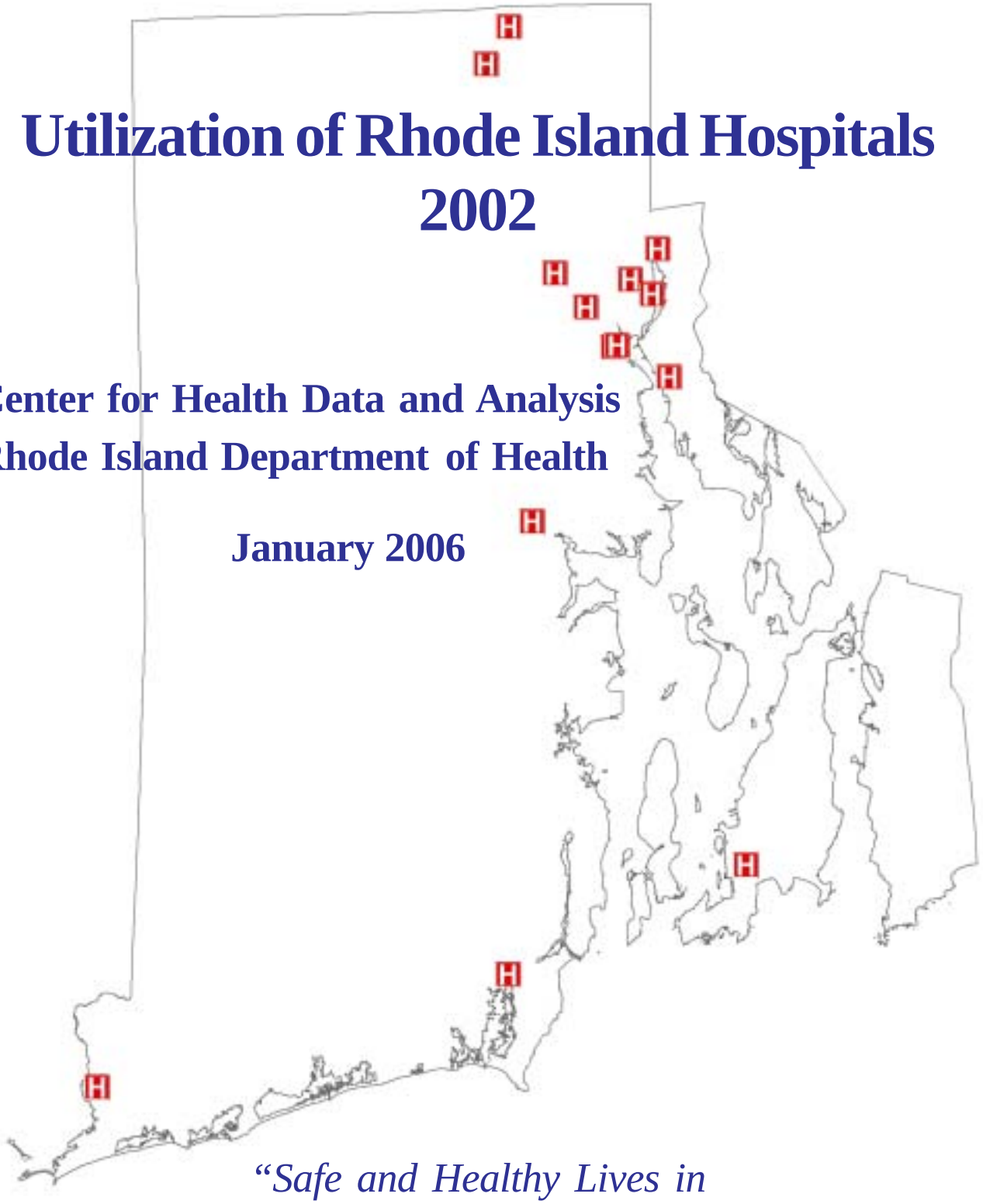
Utilization of Rhode Island Hospitals 2002



Center for Health Data and Analysis
Rhode Island Department of Health

January 2006

"Safe and Healthy Lives in Safe and Healthy Communities"

Donald L. Carcieri
Govenor

David R. Gifford, MD, MPH
Director of Health

Utilization of Rhode Island Hospitals 2002

Center for Health Data and Analysis
Rhode Island Department of Health

January 2006

Prepared by:

Susan A. Oberbeck, MSW, MHA
Karen A. Williams, MPH
Kathleen E. Taylor

"Safe and Healthy Lives in Safe and Healthy Communities"

Preface

This publication, "Utilization of Rhode Island Hospitals 2002," summarizes inpatient utilization data reported to the Rhode Island Department of Health by the state's private acute care and inpatient rehabilitation hospitals during the period January 1, 2002, through December 31, 2002. It has been produced as a reference document for health care policy makers and representatives of health plans and health plan purchasers, as well as other interested parties in the state.

Acknowledgments

The reporting of the information on which this document is based involves the careful effort of many staff persons in the state's private, acute-care hospitals. Their commitment to producing complete, accurate data is essential to the usefulness of this information system and is acknowledged with gratitude by the authors. The efforts of the Hospital Association of Rhode Island and its contractor, Solucient, Inc., in coordinating the editing and submission of data from the state's eleven acute-care general hospitals are also greatly appreciated. The contributions of these participants are key elements of the public/private partnership supporting the state's hospital discharge data system.

The authors also thank Janice Fontes for her oversight and maintenance activities in support of the hospital discharge database for the Center for Health Data and Analysis and for her computer programming efforts in support of this report.

For Additional Information

The Rhode Island Department of Health website (http://www.health.ri.gov) has additional information on the hospital discharge database. Information on how to obtain a public use data file may be obtained at http://www.health.ri.gov/chic/statistics/hdd.php.

Information on hospital financial performance may be obtained at http://www.health.ri.gov/chic/performance/index.php.

Information on the quality of hospital care may be obtained at http://www.health.ri.gov/chic/performance/series.php.

Comments, suggestions, and requests for other information may be addressed to:

Karen Williams, MPH, Public Health Epidemiologist Karen.Williams@health.ri.gov or
Janice Fontes, MA, Principal Systems Analyst JaniceF@doh.state.ri.us
Rhode Island Department of Health
Center for Health Data and Analysis, Room 407
Three Capitol Hill
Providence, Rhode Island 02908
(401) 222-2550

CONTENTS

List of Figures

EXECUTIVE SUMMARY

Utilization of Rhode Island Hospitals 2002 summarizes data from the Rhode Island Hospital Discharge Database on hospital inpatient stays during the period January 1, 2002 - December 31, 2002. These data were submitted from Rhode Island's 14 non-Federal short-stay hospitals, including -

- 5 teaching hospitals providing general acute care
- 6 other general acute-care hospitals
- 2 psychiatric teaching hospitals
- 1 rehabilitation hospital

Key Findings

Summary Measures:

- There were 126,317 discharges (non-newborn) with 691,167 days of care.
- The statewide occupancy rate was 59.8% for licensed beds and 75.8% for staffed beds.
- The average length of stay was 5.5 days.
- Rhode Island's inpatient discharge rate was 1,180.8 per 10,000 population, just higher than the United States rate of 1,174.6.

Demographics:

- There were many more women (75,503) than men (50,790) among inpatients, but women had shorter stays (average 5.2 days) than men (5.9 days).
- Discharge rates increased with age, from 37.6 per 10,000 population for ages 0-14 to 349.7 per 10,000 for ages 65 and older.
- Patients age 65 and over accounted for 42.2% of all discharges and used 47.5% of all days of care.

Principal Diagnoses:

- The most commonly reported categories of principal diagnoses were -
  - Diseases of the circulatory system (21,860 discharges)
  - Complications of pregnancy, childbirth, and the puerperium (14,612 discharges)
  - Mental disorders (12,869 discharges)
  - Diseases of the respiratory system (12,134 discharges)
- Disease-specific discharge rates per 10,000 population in Rhode Island differed substantially from national rates as follows:
  - Mental disorders were 40.2% higher
  - Neoplasms were 20.0% higher
  - Endocrine, nutritional, metabolic diseases, and immunity disorders were 25.4% lower
  - Deliveries were 10.2% lower

Procedures:

- 61.9% of inpatients had at least one surgical or major diagnostic procedure.
- For males, the three most common procedures were -
    - Arteriography and angiocardiography using contrast material (6,772)
    - Removal of coronary artery obstruction (3,292)
    - Cardiac catheterization (2,899)
- For females, the three most common procedures were -
    - Repair of obstetric laceration (5,552)
    - Arteriography and angiocardiography using contrast material (4,381)
    - Cesarean section (3,486)

Hospital Charges:

- The average charge per discharge was $15,269.

Deliveries:

- 13,248 newborns were delivered.
- The primary cesarean section rate was 18.9%; the overall cesarean rate was 26.3%.

Injuries:

- There were 6,036 discharges with a principal diagnosis of injury or poisoning (excluding late effects of injury and complications of surgical and medical care).
- The leading causes of injuries were -
    - Falls (3,071 discharges)
    - Motor vehicle traffic injuries (825 discharges)
    - Other unintentional injuries (521 discharges)
    - Self-inflicted injuries (496 discharges)

INTRODUCTION

This report provides statistics regarding the use of Rhode Island's non-Federal short-stay hospitals during the period January 1, 2002 - December 31, 2002. The data for this report came from 100% reporting of inpatient records by all non-Federal short-stay hospitals in the state. Definitions of terms and groupings used in this report can be found on page 15. Data tables 1-20 for Figures 1-14 are listed on page 17 and illustrated on pages 18-32. Additional technical documentation can be found in Appendices 1 – 6 on pages 34-45.

SUMMARY STATISTICS BY HOSPITAL

- **14 non-federal short-stay hospitals in Rhode Island report hospital discharge data. [Table 1]**

- **Hospitals vary in size and occupancy.**

  - The number of beds ranges from under 100 to over 700 [Table 2]

  - The all-hospital staffed occupancy is 76%, ranging from 52% to 102% [Figure 1]

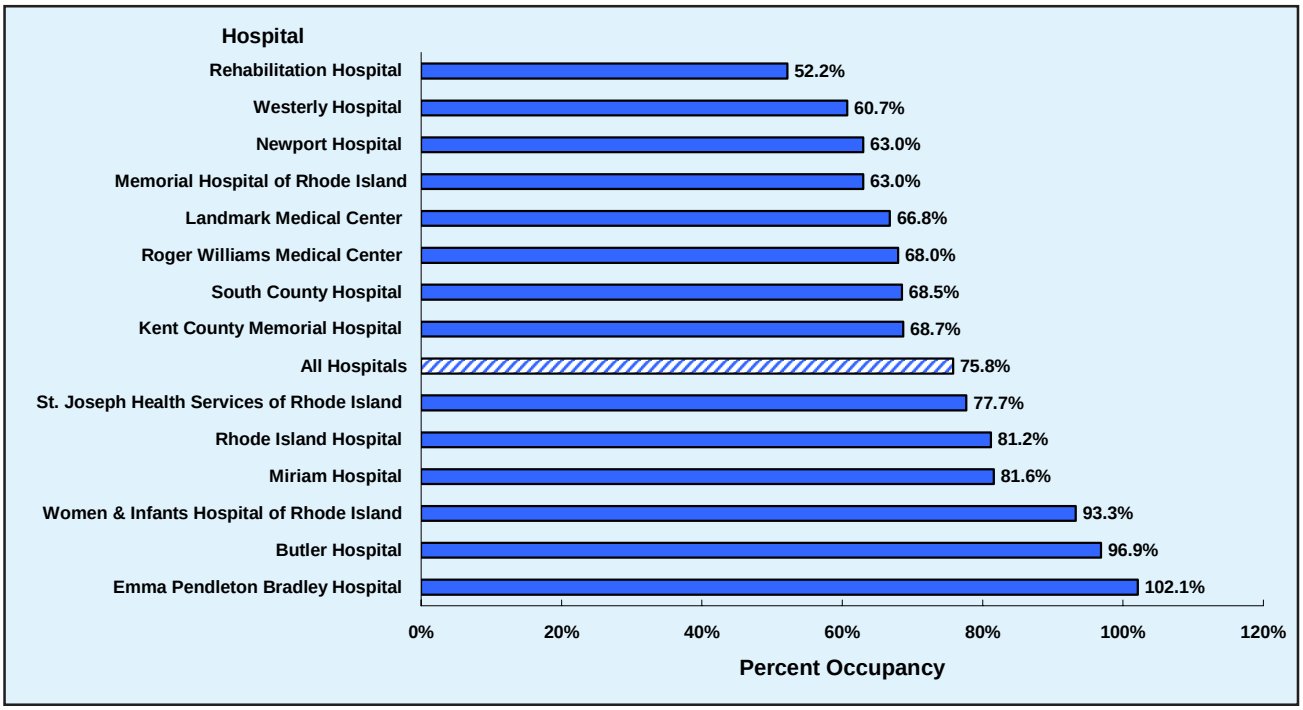


Figure 1. Staffed Occupancy Rate by Hospital, Rhode Island, 2002

- **Hospitals vary in average length of stay and average charges.**

    - The average length of stay of the 126,317 discharges is 5.5 days, ranging from 3.5 to 22.2 days. [Table 3]

    - The all-hospital average charge per discharge is $15,269, ranging from $8,410 to $22,519. [Figure 2]

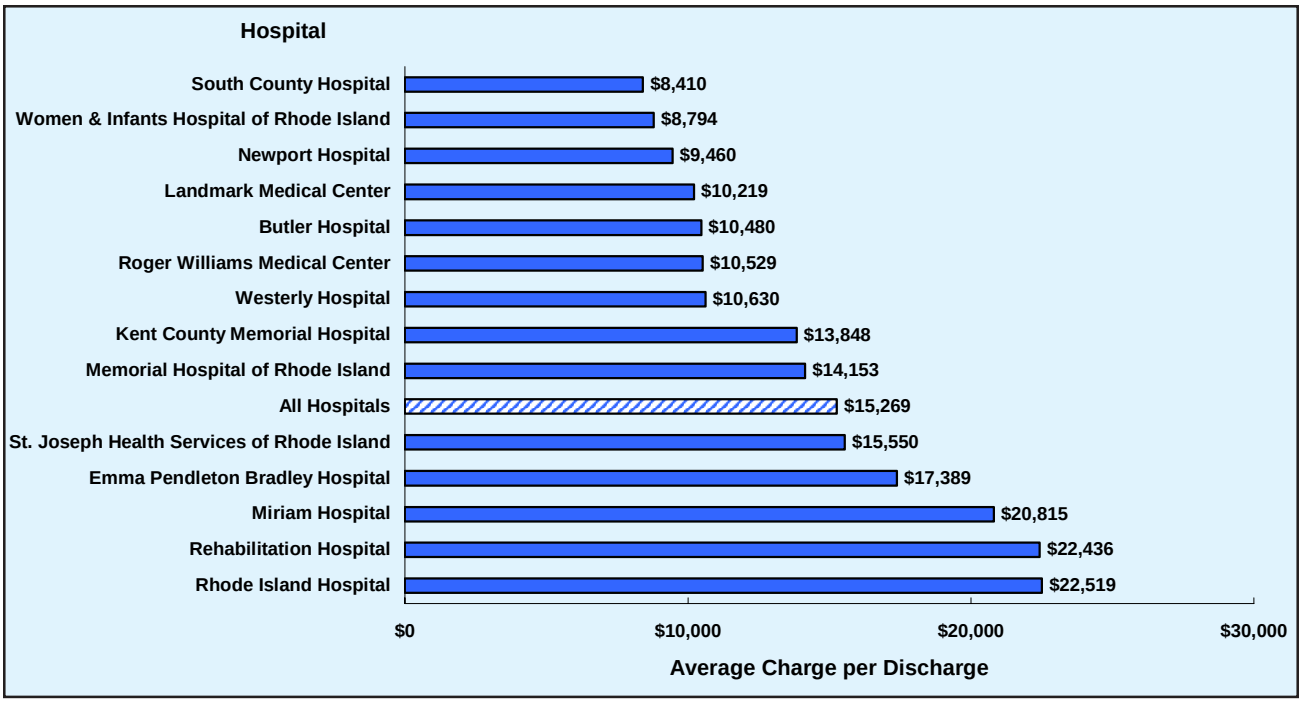


Figure 2. Average Charge per Discharge by Hospital, Rhode Island, 2002

UTILIZATION BY AGE GROUP AND GENDER

- **The elderly (ages 65 and older) are the heaviest users of inpatient care. They are only 14% of the state's population, <u>but</u> –**
  - They are 42% of all inpatients. [Figure 3]
  - They use nearly half (47.5%) of all inpatient days. [Figure 4]
  - They stay in the hospital longer than patients who are under age 65. [Table 4]

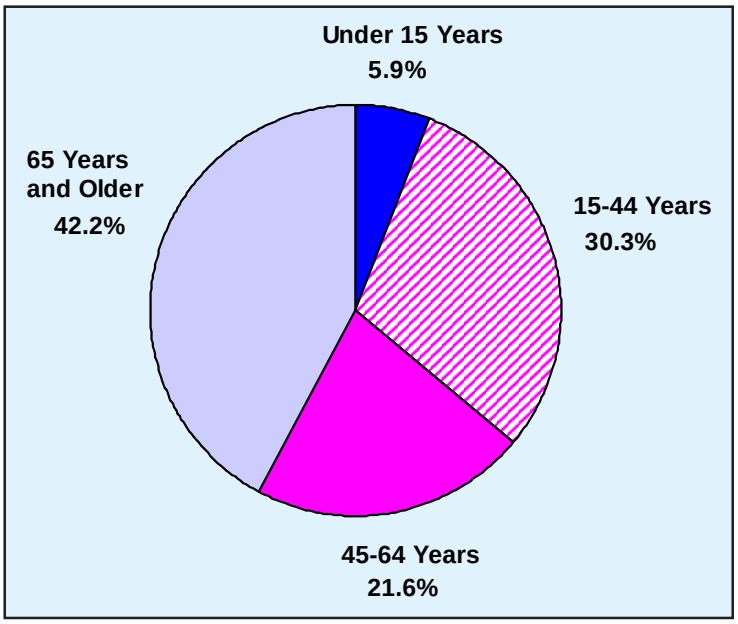


Figure 3. Percent of Total Discharges by Age, Rhode Island, 2002

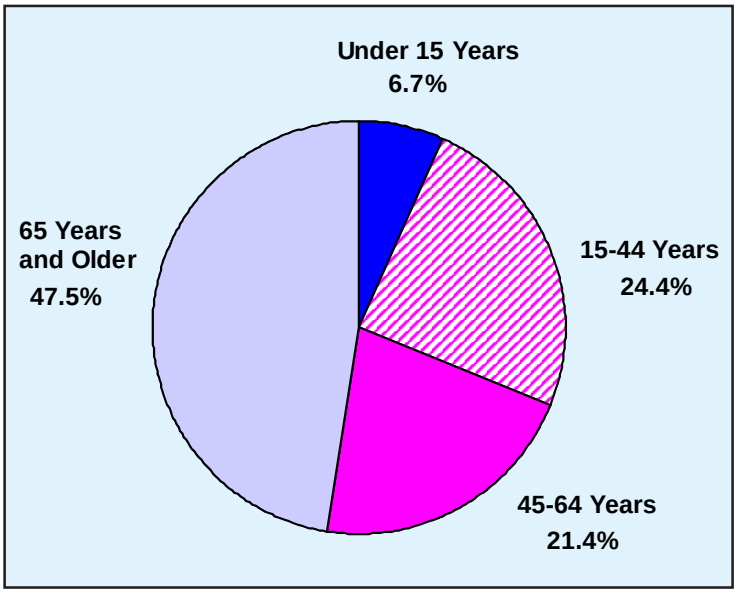


Figure 4. Percent of Total Hospital Utilization (Days) by Age, Rhode Island, 2002

- **Women use more care than men.**
  - They have more admissions and use more inpatient days than men. [Tables 4 and 5]
  - Their greater use is because of their hospitalizations during the child-bearing years, ages 15-44. [Figures 5 and 6]

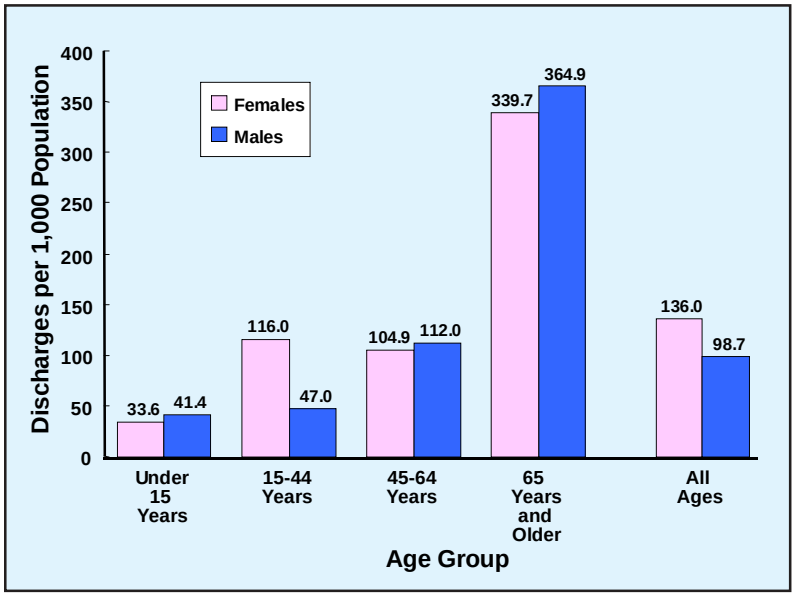


Figure 5. Discharges per 1,000 Population by Age Group and Gender, Rhode Island, 2002

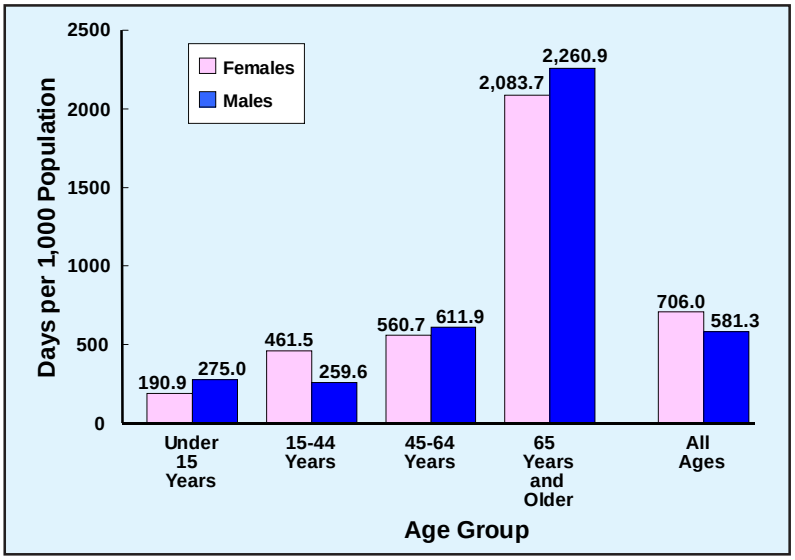


Figure 6. Utilization Rate (Days) per 1,000 Population by Age Group and Gender, Rhode Island, 2002

DISCHARGES BY DIAGNOSIS GROUP

- **The most common reasons for patients to be admitted are [Tables 6 and 7] –**
    - Diseases of the circulatory system, especially heart disease,
    - Conditions relating to child-bearing, especially newborn deliveries, and
    - Mental disorders, notably psychoses.
- **The most common reason for admission is different for men and women. [Table 7 and Figure 7]**
    - Among women, newborn deliveries are the most common reason overall.
    - Excluding deliveries, heart disease, psychoses, malignant neoplasms, and pneumonia are the most common reasons for admission, in that order, for both men and women.

Rank of Diagnosis Category	Females		Males	
	Diagnosis Category	Number of Discharges	Diagnosis Category	Number of Discharges
First	Deliveries	13,225	Heart disease	8,393
Second	Heart disease	7,591	Psychoses	4,407
Third	Psychoses	5,284	Malignant neoplasms	2,677
Fourth	Malignant neoplasms	3,104	Pneumonia	2,195
Fifth	Pneumonia	2,347	Cerebrovascular disease	1,607

Figure 7. Most Common Diagnoses (First-Listed) by Gender and Diagnosis Category, Rhode Island, 2002

- **The most common reasons for admission are the same in Rhode Island and the United States. [Figure 8, Table 8]**

    - Heart disease, deliveries, and psychoses (in descending order) are the three most common reasons in both areas.

    - The rate of hospitalization for psychoses is much lower nationally than in Rhode Island.

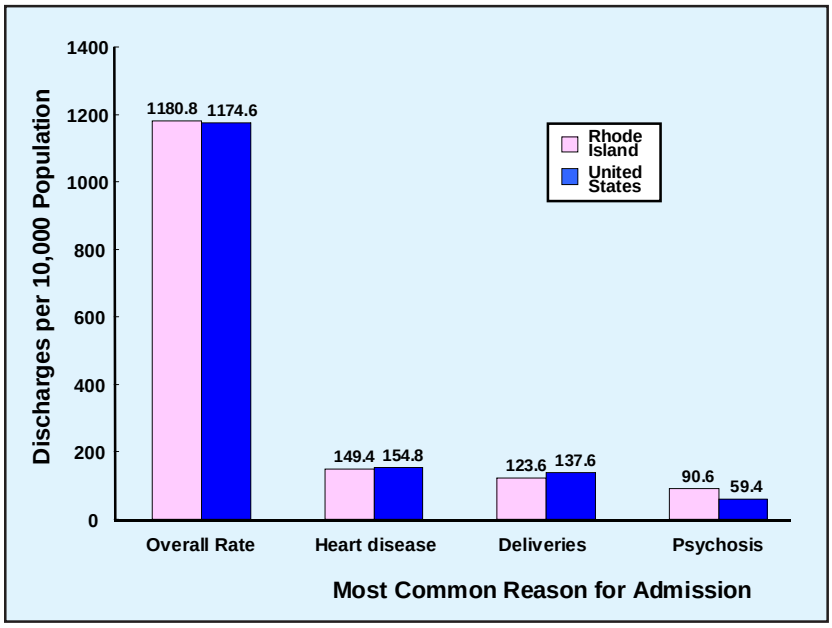


Figure 8. Discharge Rate per 10,000 Population by Reason for Admission, Rhode Island and United States, 2002

- **There are few differences in average length of stay by gender or region.**

    - In Rhode Island, average length of stay is similar among males and females, other than for malignant neoplasm of the breast. [Table 9]

    - Average length of stay is usually slightly higher for Rhode Island than for the US. [Table 10]

UTILIZATION OF SURGICAL AND DIAGNOSTIC PROCEDURES

- **The most common procedures performed are [Table 11] -**
  - Miscellaneous diagnostic and therapeutic procedures,
  - Operations on the cardiovascular system,
  - Operations on the digestive system, and
  - Obstetrical procedures.

- **The most common procedures differ for men and women. [Table 12, Figure 9]**
  - Miscellaneous diagnostic and therapeutic procedures is the most common major procedure category among all patients together and among men and women separately. These include the specific procedure categories of arteriography and angiocardiography using contrast material, respiratory therapy and diagnostic ultrasound, among others.
  - Operations on the cardiovascular system is the second leading major procedure category among men, specifically removal of coronary artery obstruction and insertion of stent(s), and diagnostic cardiac catherization.
  - Obstetrical procedures is the second most common major procedure category among women. These include repair of current obstetric laceration and cesarean section which rank first and third for specific procedure categories among women, respectively.

Rank of Specific Procedure Category	Females		Males	
	Procedure Category	Number of Procedures	Procedure Category	Number of Procedures
First	Repair of current obstetric laceration	5,552	Arteriography and angiocardiography using contrast material	6,772
Second	Arteriography and angiocardiography using contrast material	4,381	Removal of coronary artery obstruction and insertion of stent(s)	3,292
Third	Cesearean section	3,486	Cardiac catheterization	2,899
Fourth	Endoscopy of small intestine with or without biopsy	2,366	Respiratory therapy	2,394

Figure 9. Most Common Procedures (All-Listed) by Gender and Procedure Category, Rhode Island, 2002

FREQUENCY OF PERFORMANCE – SELECTED SURGICAL PROCEDURES

- **Only some hospitals performing procedures for which evidence supports a volume-outcome relationship meet recommended minimum frequency thresholds cited by the Agency for Healthcare Research and Quality (AHRQ) (See Appendix 3). [Figure 10]**

    - The two hospitals performing adult cardiac surgeries, coronary artery bypass graft and percutaneous transluminal coronary angioplasty, meet the recommended minimum thresholds for those procedures. [Table 13]

    - None of the hospitals performing pediatric heart surgery or esophageal resection meet the recommended minimum volume threshold. [Tables 14 and 15]

    - Some of the hospitals performing the remaining procedures meet the recommended minimum threshold. [Tables 15 and 16]

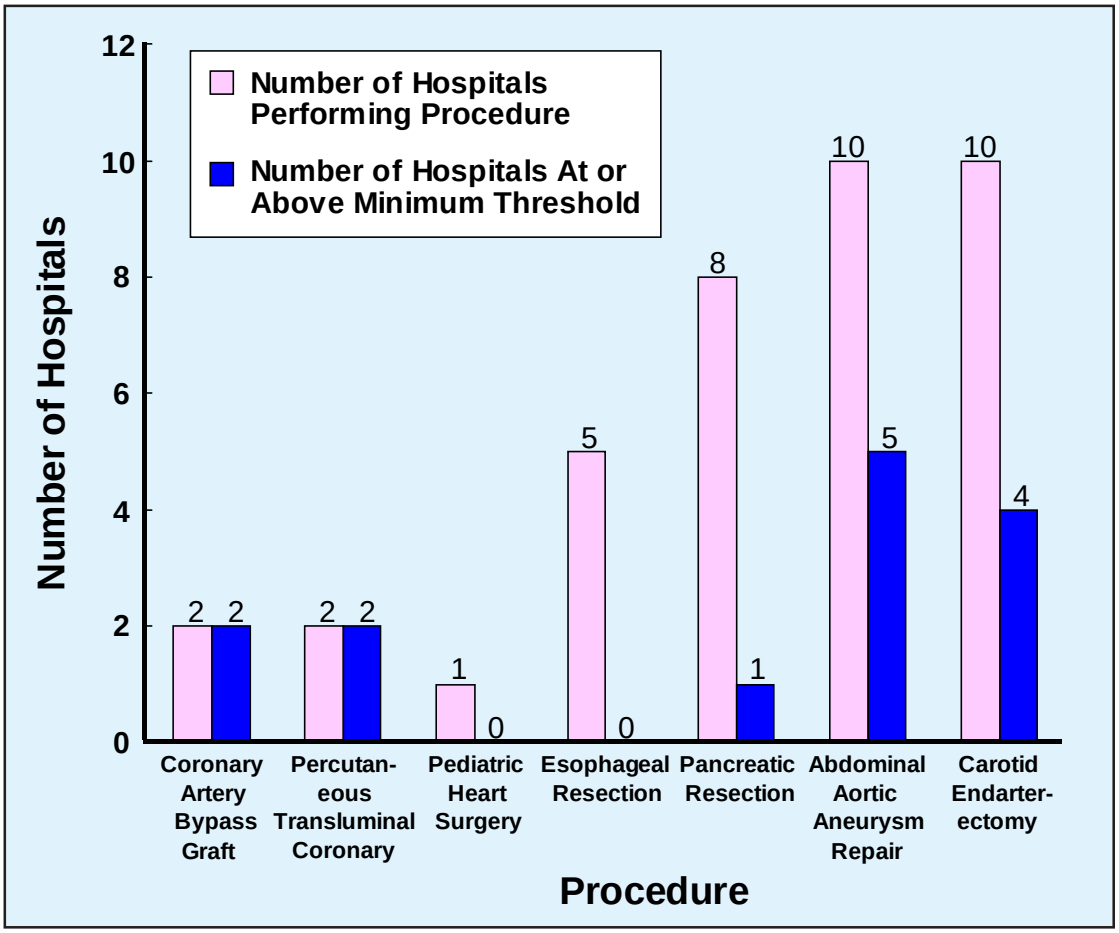


Figure 10. Number of Hospitals Performing Selected Surgical Procedures and Number of Hospitals Meeting AHRQ Recommended Minimum Threshold, Based on 1999-2002 Annual Average, Rhode Island

DISCHARGES BY GROUPED CHARGES

- The majority (57.1%) of discharges have a charge of less than $10,000. [Figure 11, Table 17].
  - The average charge per discharge is $15,269.
  - The median charge is $7,214.

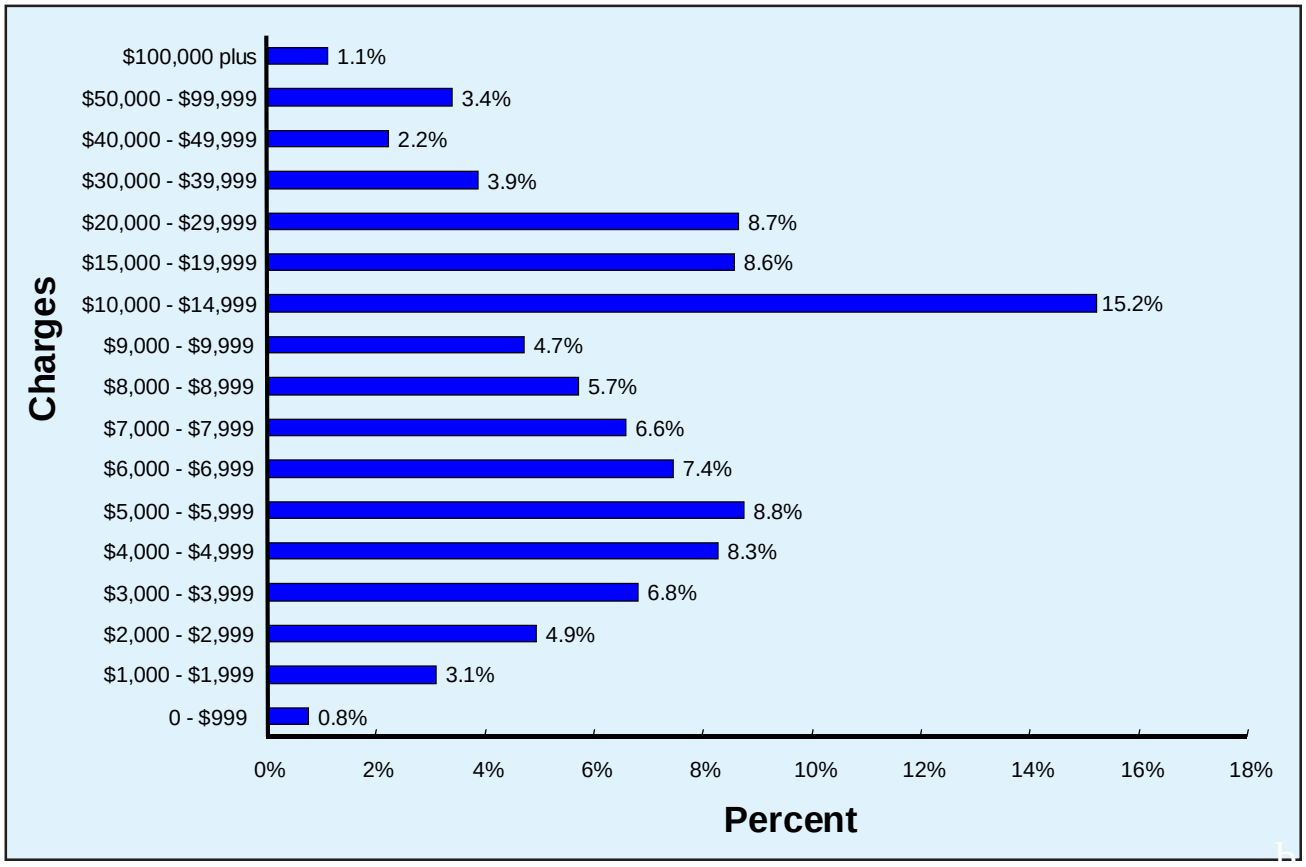


Figure 11. Percent Distribution of Hospital Discharges Grouped by Charge Categories, Rhode Island, 2002.

OBSTETRICAL UTILZATION

- **Vaginal deliveries are more common and use less days of care than cesarean.**
  - The total cesarean delivery rate is 26.3%. [Table 18]
  - The average length of stay for a vaginal delivery is 2.4 days compared to 4.6 days for cesarean. [Table 19]

- **The frequency of delivery type varies by hospital. [Table 18]**
  - The all-hospital primary cesarean delivery rate is 18.9%; by hospital, it ranges from 14.4% to 23.3%. [Figure 12]
  - The percent of vaginal deliveries after previous cesarean ranges from 10.5% to 27.8%. [Figure 13]

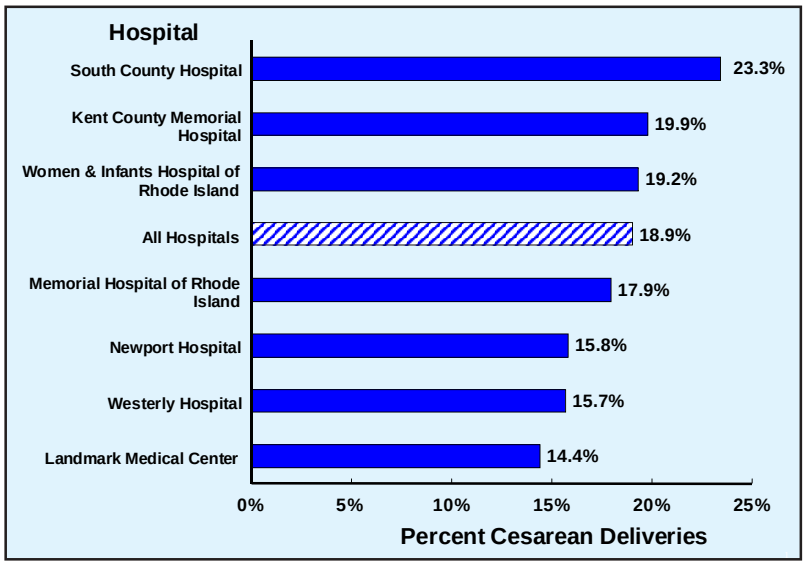


Figure 12. Primary Cesarean Delivery Rate by Hospital, Rhode Island, 2002.

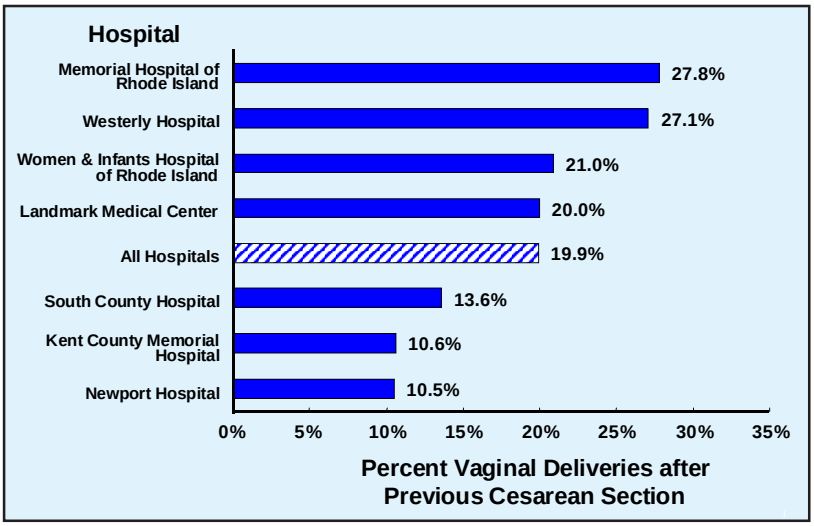


Figure 13. Vaginal Delivery Rate After Previous Cesarean Section by Hospital, Rhode Island, 2002.

DISCHARGES BY EXTERNAL CAUSE OF INJURY ("Ecode")

- **The most common external causes of injury vary by age group.**
  - Falls account for the majority of all injuries and are the most common cause of injury for those under age 15 and over age 44. [Table 20, Figure 14]
  - Motor vehicle crashes are the most common cause of injury for those age 15-44 years. [Figure 14]

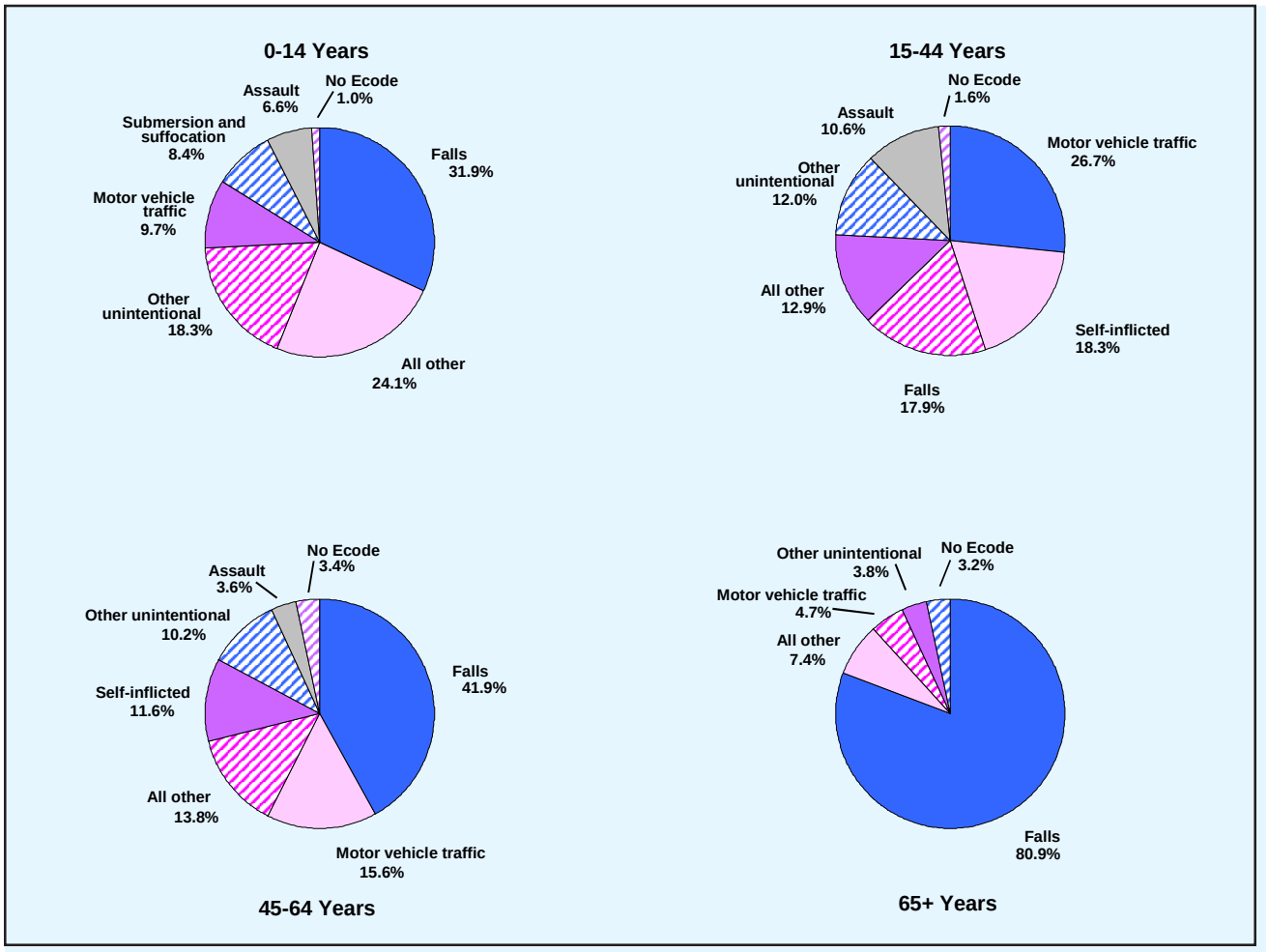


Figure 14. Discharges by External Cause of Injury by Age Group, Rhode Island, 2002.

DEFINITION OF TERMS

Familiarity with the definitions used in the report is important for interpreting the data and for making comparisons with statistical data on short-stay hospital use that are available from other sources. Definitions of the terms and groupings used in this report are described below and in Appendices 1 - 5. The following terms are described in the order as they appear in the text.

Hospital discharge data have been reported as a requirement for hospital licensure since October 1, 1989. Three specialty hospitals (two psychiatric hospitals and one rehabilitation hospital) began reporting October 1, 1998. The data were collected by means of a statewide reporting system that was established as of October 1, 1989 by regulations promulgated by the Rhode Island Department of Health under its licensure authority (Rhode Island General Laws 23-17-10). *(Current licensure regulations for hospitalizations, including detailed data reporting specifications, are available on the website of the Rhode Island Secretary of State (www.rules.state.ri.us/rules/released/pdf/DOH/DOH_2372.pdf) or upon request to the Division of Health Services Regulation, Rhode Island Department of Health, 3 Capitol Hill, Providence, RI 02908 Telephone: 401-277-6015).*

Tertiary services include: cardiac catheterization, positron emission tomography, linear accelerators, open heart surgery, organ transplantation, and neonatal intensive care services, per *Rules and Regulations for Determination of Need for New Health Care Equipment and New Institutional Health Services (R23-15-CON, State of Rhode Island and Providence Plantations, Department of Health, June 1979, amended January 2002*. (See Reference 5)

Beds exclude bassinets.

Patient days and average length of stay (ALOS) are computed after adjusting patients admitted and discharged on the same day to a stay of one day.

Discharge data of newborn infants are excluded from this report, consistent with the national reports.

Medical data including diagnoses and procedures were coded according to the *International Classification of Diseases, 9th Revision, Clinical Modification*, (ICD-9-CM). (See Reference 2). As of 1999, the first eleven listed diagnoses and the first ten listed procedures on the hospital medical record are reported for each discharge. The conditions diagnosed and procedures performed are presented by major diagnostic and procedure groups of the ICD-9-CM. Within these diagnostic and procedure groups, some specific categories were selected for presentation because of large frequencies or special interest.

Diagnosis codes have been grouped into 18 major categories and 33 specific categories. The specific categories are all sub-classifications of the major diagnostic categories, but are not necessarily inclusive of these groups. (See Appendix 1)

Procedures are grouped into 16 major procedure groups and 35 specific categories. The specific categories are all sub-classifications of the major groups, but do not represent a complete sub-division of the major groups in all cases. Up to ten procedures may be reported per discharge, as all reported procedures are included, the information presented is described as "all-listed procedures." Comparison of the procedure rates for Rhode Island and the United States was not possible, as the data are not collected comparably.

Rhode Island collects up to 10 procedures per discharge, while the United States only collects up to 4 procedures per discharge. (See Appendix 2)

Volume-outcome relationship for seven surgical procedures:
For some surgical procedures, research studies have determined that patients have generally better outcomes where hospitals and/or surgeons perform the procedure regularly (see References 6 and 7). Based on this research, the federal Agency for Healthcare Research and Quality (AHRQ) and the Leapfrog Group have developed groups of indicators based on hospital surgical volumes for specific procedures, which can be used as screening tools to identify potential quality of care issues (see References 7 and 8). For these procedures, it is said that a "volume-outcome relationship" has been established. *It should be noted that this is a statistical relationship typically based on data from many dozens and sometimes hundreds of hospitals, and exceptions to the general relationship may be expected. Some low-volume hospitals may have excellent outcomes, and vice-versa. Because of these exceptions, surgical volume alone should not be used as an indicator of the quality of care provided by a specific hospital. Data on hospital surgical volumes should preferably be used in combination with case-mix adjusted measures of surgical outcomes, e.g., in-hospital mortality and/or complication rates, and surgeon-specific volume measures, for patients undergoing the procedure, where such measures are available.*

AHRQ has included the performance frequencies of the seven procedures as measures in their set of "Inpatient Quality Indicators (IQIs)," one of three sets of indicators of the quality of care provided by hospitals and other health care providers. AHRQ cites facility volume threshold levels for this volume-outcome relationship for each of the seven procedures, above which treatment outcomes are generally better than at lower frequencies, based on findings in the literature. Some procedures have upper and lower volume threshold levels, reflecting a range of minimum volume thresholds in the research literature (see Reference 7). In these cases, the lower volume threshold is used for comparison in this report. More information on AHRQ's quality indicators may be obtained at http://www.qualityindicators.ahrq.gov/. (See Appendix 3)

Data on deliveries is presented using two different tabulation methods in this report and thus, caution must be used when interpreting this data. The Discharges by Diagnosis Group section of this report counts deliveries as the number of discharges with a principal diagnosis code corresponding to a delivery. (See Appendix 1) The Obstetrical Utilization section of this report counts deliveries as the number of discharges with any diagnosis code corresponding to a delivery. (See Appendix 4)

The average charges per discharge are not adjusted for the different complexity of the hospitals' case-mix. Actual reimbursement to the hospitals per discharge will generally be lower than average charges, depending on the specific arrangements under which payers reimburse hospitals. Data for 2002 on actual payments to the hospitals are not available in the discharge data, but may be found in reports on aggregate hospital financial performance, *Hospital Financial Dataset 2003*, available at http://www.health.ri.gov/chic/performance/hospitaldataset2003.xls

Ecode is a reference to an external cause of injury code.

LIST OF DATA TABLES FOR FIGURES 1 – 14

Table 1. Characteristics of Rhode Island hospitals, 2002[1]

Hospital	Type of Hospital				Services						
	General Med/Surg	Obstetrics & Gynecology	Psychiatric	Rehabilitation	Obstetrics & Gynecology	Pediatrics	Psychiatric	Rehabilitation	Emergency Room	Teaching Hospital	Tertiary Status
Care New England Network Affiliation:											
Butler Hospital			X				X			X	
Kent County Memorial Hospital	X				X	X	X	X	X		X
Women & Infants Hospital of Rhode Island		X			X					X	X
Landmark Health Systems Affiliation:											
Landmark Medical Center	X				X		X	X	X		
Rehabilitation Hospital of Rhode Island *(for-profit)*				X				X			
Lifespan Network Affiliation:											
Emma Pendleton Bradley Hospital			Pediatric				X			X	
Miriam Hospital	X								X	X	X
Newport Hospital	X				X	X	X	X	X		
Rhode Island Hospital	X					X			X	X	X
Memorial Hospital of Rhode Island	X				X	X		X	X	X	X
Roger Williams Medical Center	X						X		X	X	X
St. Joseph Health Services of Rhode Island *(church)*	X						X	X	X		
South County Hospital	X				X	X			X		
Westerly Hospital	X				X	X			X		

[1]Sources: American Hospital Association: A Guide to United States Hospitals, Health Care Systems, Networks, Alliances, Health Organizations, Agencies, and Providers 2002 (See Reference 3).
Center for Health Data and Analysis, Rhode Island Department of Health (See Reference 4).

Table 2. Licensed and staffed beds and occupancy rates, Rhode Island, 2002[1]

Hospital	Licensed Beds[2]	Staffed Beds[2]	Licensed Occupancy	Staffed Occupancy
All Hospitals…….……	3,169	2,498	59.8%	75.8%
Emma Pendleton Bradley Hospital…… …..	60	60	102.1%	102.1%
Butler Hospital …….	105	105	96.9%	96.9%
Kent County Memorial Hospital…… …..	359	338	64.6%	68.7%
Landmark Medical Center…….	315	205	43.5%	66.8%
Memorial Hospital of Rhode Island …….	294	159	34.0%	63.0%
Miriam Hospital ……..…….	247	203	67.1%	81.6%
Newport Hospital …….	129	123	60.1%	63.0%
Rehabilitation Hospital of Rhode Island……...	82	78	49.6%	52.2%
Rhode Island Hospital……...	719	572	64.6%	81.2%
Roger Williams Medical Center……	220	155	47.9%	68.0%
St. Joseph Health Services of Rhode Island….. …..	359	272	58.8%	77.7%
South County Hospital…… …….	100	86	58.9%	68.5%
Westerly Hospital……... …..	125	83	40.3%	60.7%
Women & Infants Hospital of Rhode Island….. …..	137	137	93.3%	93.3%

[1]Source:Center for Health Information and Communication, Rhode Island Department of Health (See Reference 4).
[2]Beds exclude bassinets.

Table 3. Hospital utilization, Rhode Island, 2002

Discharges of newborn infants are excluded.

Hospital	Discharges	Patient Days[1]	Average Length of Stay[1]	Average Charge per Discharge
All Hospitals……	126,317	691,167	5.5	$15,269
Emma Pendleton Bradley Hospital……..……	1,008	22,362	22.2	$17,389
Butler Hospital ……	4,364	37,122	8.5	$10,480
Kent County Memorial Hospital……..……	14,228	84,702	6.0	$13,848
Landmark Medical Center……...	7,285	35,123	4.8	$10,219
Memorial Hospital of Rhode Island ……..	7,723	36,538	4.7	$14,153
Miriam Hospital ……..…….	12,250	60,456	4.9	$20,815
Newport Hospital ……	5,688	28,294	5.0	$9,460
Rehabilitation Hospital of Rhode Island….……	910	14,852	16.3	$22,436
Rhode Island Hospital……..……	30,654	169,627	5.5	$22,519
Roger Williams Medical Center……..…….	8,105	38,454	4.7	$10,529
St. Joseph Health Services of Rhode Island……	5,275	21,489	4.1	$8,410
South County Hospital……	10,901	77,108	7.1	$15,550
Westerly Hospital……	4,525	18,387	4.1	$10,630
Women & Infants Hospital of Rhode Island…...	13,401	46,653	3.5	$8,794

[1]Patient days and average length of stay are computed after adjusting patients admitted and discharged on the same day to a stay of one day.

Table 4. Hospital utilization by age group and gender, Rhode Island, 2002

Discharges of newborn infants are excluded.

Age Group	Discharges	Patient Days[1]	Average Length of Stay[1]
Under 15 Years: All…….	**7,448**	**46,340**	**6.2**
Female……	3,252	18,475	5.7
Male……	4,196	27,865	6.6
15-44 Years: All[2]……...	**38,250**	**168,985**	**4.4**
Female……	27,398	108,993	4.0
Male……	10,850	59,911	5.5
45-64 Years: All……	**27,334**	**147,758**	**5.4**
Female……	13,656	73,005	5.3
Male……	13,678	74,753	5.5
65 Years and Older……...	**53,257**	**328,034**	**6.2**
Female……	31,193	191,340	6.1
Male……	22,064	136,694	6.2
Age not reported……...	**28**	**50**	**1.8**
All Ages……..	**126,317**	**691,167**	**5.5**
Female……	75,503	391,837	5.2
Male……	50,790	299,227	5.9
Gender not reported……	24	103	4.3

[1]Patient days and average length of stay are computed after adjusting patients admitted and discharged on the same day to a stay of one day.
[2]Two cases, ages 15-44 years, with gender not reported are included. These cases used a total of 81 days.

Table 5. Hospital utilization rate per 1,000 population[1] by age group and gender, Rhode Island, 2002

Discharges of newborn infants are excluded.

Age Group	Discharge Rate[2]	Utilization Rate (Days)[2]
Under 15 Years: All…	**37.6**	**233.9**
Female……	33.6	190.9
Male……..	41.4	275.0
15-44 Years: All[3]……	**81.9**	**361.9**
Female……..	116.0	461.5
Male……..	47.0	259.6
45-64 Years: All…….	**108.3**	**585.5**
Female……..	104.9	560.7
Male……..	112.0	611.9
65 Years and Older….	**349.7**	**2,154.1**
Female……..	339.7	2,083.7
Male……..	364.9	2,260.9
All Ages[4]……..	**118.1**	**646.1**
Female……..	136.0	706.0
Male……..	98.7	581.3

[1]Population estimates for Rhode Island as of July 1, 2002 were provided by the Bureau of the Census, United States Department of Commerce (See Appendix 6).
[2]Rates are not adjusted for patient's state of residence.
[3]Two cases for which age is known and gender is not reported are included.
[4]Twenty-eight cases where age is not reported are included.

Table 6. Number of discharges by gender and first-listed diagnosis, Rhode Island, 2002

Discharges of newborn infants are excluded.

First-Listed Diagnosis[1]	Total	Female	Male
All conditions[2]	126,317	75,288	50,654
Infectious and parasitic diseases	2,744	1,510	1,234
Septicemia	1,157	685	472
Neoplasms	7,522	4,568	2,954
Malignant neoplasms	5,781	3,104	2,677
Malignant neoplasm of large intestine and rectum	734	381	353
Malignant neoplasm of trachea, bronchus, and lung	774	359	415
Malignant neoplasm of the breast	325	319	6
Benign neoplasms	1,573	1,370	203
Endocrine, nutritional, and metabolic diseases, and immunity disorders	4,503	2,636	1,867
Diabetes mellitus	1,610	788	822
Volume depletion	1,606	970	636
Diseases of the blood and blood-forming organs	1,319	700	619
Mental disorders[3]	12,869	6,815	6,053
Psychoses	9,692	5,284	4,407
Alcohol dependence syndrome	459	164	295
Diseases of the nervous system and sense organs	1,773	1,016	757
Diseases of the circulatory system	21,860	10,673	11,187
Heart disease	15,984	7,591	8,393
Acute myocardial infarction	3,314	1,464	1,850
Coronary atherosclerosis	3,712	1,339	2,373
Other ischemic heart disease	345	164	181
Cardiac dysrhythmias	2,419	1,253	1,166
Congestive heart failure	4,214	2,313	1,901
Cerebrovascular disease	3,399	1,792	1,607
Diseases of the respiratory system	12,134	6,444	5,690
Acute bronchitis and bronchiolitis	735	350	385
Pneumonia	4,542	2,347	2,195
Chronic bronchitis	2,357	1,370	987
Asthma	1,440	880	560
Diseases of the digestive system	11,730	6,455	5,275
Appendicitis	1,016	445	571
Noninfectious enteritis and colitis	1,112	709	403
Diverticula of intestine	1,205	687	518
Cholelithiasis	1,132	756	376
Diseases of the genitourinary system	6,272	4,088	2,184
Calculus of kidney and ureter	674	303	371
Complications of pregnancy, childbirth, and the puerperium	14,612	14,612	0
Females with deliveries	13,225	13,225	0
Diseases of the skin and subcutaneous tissue	2,203	1,107	1,096
Cellulitis and abscess	1,814	896	918
Diseases of the musculoskeletal system and connective tissue	6,632	3,810	2,822
Osteoarthrosis and allied disorders	2,198	1,406	792
Intervertebral disc disorders	1,555	728	827
Congenital anomalies	484	203	281
Certain conditions originating in the perinatal period	437	179	258
Symptoms, signs, and ill-defined conditions	7,029	4,083	2,946
Injury and poisoning	9,316	5,003	4,313
Fractures, all sites	3,703	2,251	1,452
Fracture of neck of femur	1,366	1,044	322
Poisonings	733	423	310
Supplementary classifications	2,504	1,386	1,118

[1]Diagnosis groups are defined in Appendix 1.

[2]Of the 126,317 discharges, there are 374 cases missing a first-listed diagnosis included in the total. When these cases are excluded, the All Conditions total is 125,943. One case with unknown gender included in the total.

[3]One case with a first-listed diagnosis of mental disorder (psychoses), with unknown gender, is included in the total.

Table 7. Leading reasons for hospital admission by gender and first-listed diagnosis, Rhode Island, 2002

Discharges of newborn infants are excluded.

First-Listed Diagnosis[1]	All Patients
Heart disease…….	15,984
Deliveries……..	13,225
Psychoses……..	9,692
Malignant neoplasms…….	5,781
Pneumonia…….	4,542

First-Listed Diagnosis[1]	Female
Deliveries……...	13,225
Heart disease……..	7,591
Psychoses……...	5,284
Malignant neoplasms…….	3,104
Pneumonia…….	2,347

First-Listed Diagnosis[1]	Male
Heart disease…….	8,393
Psychoses……..	4,407
Malignant neoplasms……	2,677
Pneumonia…….	2,195
Cerebrovascular disease……	1,607

[1]Diagnosis groups are defined in Appendix 1.

Table 8. Hospital discharge rate per 10,000 population[1] by first-listed diagnosis, Rhode Island and the United States, 2002

Discharges of newborn infants are excluded.

First-Listed Diagnosis[2]	RI Rate[3]	US Rate[4]
All conditions[5]	1,180.8	1,174.6
Infectious and parasitic diseases	25.7	30.5
Septicemia	10.8	11.9
Neoplasms	70.3	58.6
Malignant neoplasms	54.0	42.1
Malignant neoplasm of large intestine and rectum	6.9	5.5
Malignant neoplasm of trachea, bronchus, and lung	7.2	5.6
Malignant neoplasm of the breast	3.0	3.0
Benign neoplasms	14.7	14.9
Endocrine, nutritional, and metabolic diseases, and immunity disorders	42.1	56.4
Diabetes mellitus	15.1	20.1
Volume depletion	15.0	17.7
Diseases of the blood and blood-forming organs	12.3	15.5
Mental disorders,	120.3	85.8
Psychoses	90.6	59.4
Alcohol dependence syndrome	4.3	5.1
Diseases of the nervous system and sense organs	16.6	18.0
Diseases of the circulatory system	204.4	222.0
Heart disease	149.4	154.8
Acute myocardial infarction	31.0	28.5
Coronary atherosclerosis	34.7	38.2
Other ischemic heart disease	3.2	7.3
Cardiac dysrhythmias	22.6	27.5
Congestive heart failure	39.4	33.8
Cerebrovascular disease	31.8	32.8
Diseases of the respiratory system	113.4	123.4
Acute bronchitis and bronchiolitis	6.9	9.7
Pneumonia	42.5	45.7
Chronic bronchitis	22.0	18.1
Asthma	13.5	16.8
Diseases of the digestive system	109.7	115.6
Appendicitis	9.5	10.3
Noninfectious enteritis and colitis	10.4	10.8
Diverticula of intestine	11.3	9.1
Cholelithiasis	10.6	12.5
Diseases of the genitourinary system	58.6	63.3
Calculus of kidney and ureter	6.3	6.1
Complications of pregnancy, childbirth, and the puerperium[6]	136.6	156.0
Females with deliveries	123.6	137.6
Diseases of the skin and subcutaneous tissue	20.6	20.9
Cellulitis and abscess	17.0	14.7
Diseases of the musculoskeletal system and connective tissue	62.0	60.5
Osteoarthrosis and allied disorders	20.5	19.8
Intervertebral disc disorders	14.5	12.3
Congenital anomalies	4.5	6.2
Certain conditions originating in the perinatal period	4.1	5.8
Symptoms, signs, and ill-defined conditions	65.7	9.9
Injury and poisoning	87.1	93.9
Fractures, all sites	34.6	34.7
Fracture of neck of femur	12.8	11.0
Poisonings	6.9	7.4
Supplementary classifications[6]	23.4	32.4

[1]Population estimates for Rhode Island as of July 1, 2002, were provided by the Bureau of the Census, United States Department of Commerce. (See Appendix 6.)

[2]Diagnosis groups are defined in Appendix 1.

[3]Rates are not adjusted for patient's state of residence. (Rhode Island)

[4]Source for the United States rates: See Reference 1.

[5]Three hundred and seventy-four (374) cases are missing a first-listed diagnosis. When these cases are excluded, the discharge rate for Rhode Island is 1177.3 per 10,000 population.

[6]US rate calculated by the Rhode Island Department of Health using data in the US report.

Table 9. Average length of stay[1] by gender and first-listed diagnosis, Rhode Island, 2002

Discharges of newborn infants are excluded.

First-Listed Diagnosis[2]	Total	Female	Male
All conditions[3]	5.5	5.2	5.9
Infectious and parasitic diseases	6.8	6.7	6.8
Septicemia	9.2	9.6	8.9
Neoplasms	6.8	6.2	7.6
Malignant neoplasms	7.7	7.5	7.8
Malignant neoplasm of large intestine and rectum	10.2	10.0	10.3
Malignant neoplasm of trachea, bronchus, and lung	8.1	8.7	7.6
Malignant neoplasm of the breast	3.7	3.4	23.7
Benign neoplasms	3.6	3.3	5.4
Endocrine, nutritional, and metabolic diseases, and immunity disorders	4.9	4.7	5.2
Diabetes mellitus	5.9	5.7	6.2
Volume depletion	3.9	4.0	3.8
Diseases of the blood and blood-forming organs	4.9	5.0	4.7
Mental disorders[4]	8.2	8.3	8.1
Psychoses	8.5	8.8	8.2
Alcohol dependence syndrome	3.4	3.4	3.5
Diseases of the nervous system and sense organs	6.4	6.2	6.6
Diseases of the circulatory system	5.2	5.4	5.0
Heart disease	4.8	5.1	4.5
Acute myocardial infarction	5.3	5.6	5.1
Coronary atherosclerosis	3.6	3.8	3.4
Other ischemic heart disease	2.2	2.3	2.0
Cardiac dysrhythmias	3.8	4.0	3.5
Congestive heart failure	5.3	5.4	5.3
Cerebrovascular disease	6.0	6.0	6.0
Diseases of the respiratory system	6.0	6.0	6.1
Acute bronchitis and bronchiolitis	3.1	3.1	3.1
Pneumonia	5.9	6.0	5.8
Chronic bronchitis	5.4	5.6	5.1
Asthma	3.2	3.7	2.4
Diseases of the digestive system	5.4	5.5	5.4
Appendicitis	3.6	3.6	3.6
Noninfectious enteritis and colitis	5.5	5.5	5.3
Diverticula of intestine	5.8	6.2	5.4
Cholelithiasis	4.4	4.3	4.6
Diseases of the genitourinary system	4.0	3.8	4.3
Calculus of kidney and ureter	2.9	3.2	2.7
Complications of pregnancy, childbirth, and the puerperium	3.0	3.0	0.0
Females with deliveries	3.0	3.0	0.0
Diseases of the skin and subcutaneous tissue	5.3	5.6	5.0
Cellulitis and abscess	5.0	5.3	4.7
Diseases of the musculoskeletal system and connective tissue	4.1	4.3	3.8
Osteoarthrosis and allied disorders	4.6	4.7	4.5
Intervertebral disc disorders	2.1	2.3	2.0
Congenital anomalies	4.6	5.6	3.8
Certain conditions originating in the perinatal period	8.8	10.4	7.7
Symptoms, signs, and ill-defined conditions	3.0	3.1	3.0
Injury and poisoning	6.2	5.9	6.5
Fractures, all sites	6.4	6.0	7.1
Fracture of neck of femur	6.9	6.5	8.0
Poisonings	3.6	3.3	4.0
Supplementary classifications	9.4	9.1	9.7

[1]Average length of stay is computed after adjusting patients admitted and discharged on the same day to a stay of one day.

[2]Diagnosis groups are defined in Appendix 1.

[3]There are 374 cases without a first-listed diagnosis, average length of stay of 24.0 days, included in the total. There are 24 cases with unknown gender, average length of stay of 4.3 days, included in the total. Twenty-three of these are also missing a first-listed diagnosis, average length of stay of 3.7 days..

[4]One case with a first-listed diagnosis of mental disorder (psychoses), with unknown gender, is included in the total.

Table 10. Average length of stay[1] by first-listed diagnosis, Rhode Island and the United States, 2002

Discharges of newborn infants are excluded.

First-Listed Diagnosis[2]	Total RI	Total US[3]
All conditions[4]	5.5	4.9
Infectious and parasitic diseases	6.8	6.4
Septicemia	9.2	8.3
Neoplasms	6.8	6.1
Malignant neoplasms	7.7	7.1
Malignant neoplasm of large intestine and rectum	10.2	8.7
Malignant neoplasm of trachea, bronchus, and lung	8.1	7.5
Malignant neoplasm of the breast	3.7	2.9
Benign neoplasms	3.6	3.3
Endocrine, nutritional, and metabolic diseases, and immunity disorders	4.9	4.3
Diabetes mellitus	5.9	5.0
Volume depletion	3.9	3.8
Diseases of the blood and blood-forming organs	4.9	4.4
Mental disorders	8.2	7.1
Psychoses	8.5	8.0
Alcohol dependence syndrome	3.4	5.8
Diseases of the nervous system and sense organs	6.4	5.1
Diseases of the circulatory system	5.2	4.7
Heart disease	4.8	4.6
Acute myocardial infarction	5.3	5.6
Coronary atherosclerosis	3.6	3.5
Other ischemic heart disease	2.2	2.6
Cardiac dysrhythmias	3.8	3.6
Congestive heart failure	5.3	5.4
Cerebrovascular disease	6.0	5.3
Diseases of the respiratory system	6.0	5.3
Acute bronchitis and bronchiolitis	3.1	3.4
Pneumonia	5.9	5.7
Chronic bronchitis	5.4	5.3
Asthma	3.2	3.2
Diseases of the digestive system	5.4	4.9
Appendicitis	3.6	3.2
Noninfectious enteritis and colitis	5.5	4.7
Diverticula of intestine	5.8	5.8
Cholelithiasis	4.4	4.0
Diseases of the genitourinary system	4.0	3.7
Calculus of kidney and ureter	2.9	2.2
Complications of pregnancy, childbirth, and the puerperium[5]	3.0	2.6
Females with deliveries	3.0	2.6
Diseases of the skin and subcutaneous tissue	5.3	5.3
Cellulitis and abscess	5.0	5.2
Diseases of the musculoskeletal system and connective tissue	4.1	3.9
Osteoarthrosis and allied disorders	4.6	4.2
Intervertebral disc disorders	2.1	2.8
Congenital anomalies	4.6	5.8
Certain conditions originating in the perinatal period	8.8	11.1
Symptoms, signs, and ill-defined conditions	3.0	2.7
Injury and poisoning	6.2	5.3
Fractures, all sites	6.4	5.4
Fracture of neck of femur	6.9	6.6
Poisonings	3.6	2.7
Supplementary classifications[5]	9.4	8.9

[1]Average length of stay is computed after adjusting patients admitted and discharged on the same day to a stay of one day.
[2]Diagnosis groups are defined in Appendix 1.
[3]Source for the United States rates: See Reference 1.
[4]Three hundred and seventy-four (374) cases without a first-listed diagnosis, average length of stay of 24.0 days, are included in the total.
[5]US length of stay calculated by the Rhode Island Department of Health using data in US report.

Table 11. Number of all-listed procedures for discharges from hospitals, by gender and procedure category, Rhode Island, 2002

Discharges of newborn infants are excluded.

Procedures[1]	Total	Female	Male
All procedures[2]	179,985	103,349	76,636
Operations on the nervous system	4,504	2,245	2,259
Spinal tap	1,405	693	712
Operations on the endocrine system	226	150	76
Operations on the eye	193	106	87
Operations on the ear	85	37	48
Operations on the nose, mouth, and pharynx	753	323	430
Operations on the respiratory system	5,158	2,321	2,837
Bronchoscopy with or without biopsy	1,408	598	810
Operations on the cardiovascular system	30,009	12,746	17,263
Removal of coronary artery obstruction and insertion of stent(s)	4,905	1,613	3,292
Coronary artery bypass graft	2,110	600	1,510
Cardiac catheterization	4,693	1,794	2,899
Insertion, replacement, removal, and revision of pacemaker leads or device	1,650	784	866
Hemodialysis	2,164	1,003	1,161
Operations on the hemic and lymphatic system	1,700	850	850
Operations on the digestive system	24,789	14,292	10,497
Endoscopy of small intestine with or without biopsy	4,234	2,366	1,868
Endoscopy of large intestine with or without biopsy	2,685	1,606	1,079
Partial excision of large intestine	1,261	698	563
Appendectomy, excluding incidental	1,118	522	596
Cholecystectomy	1,555	1,023	532
Lysis of peritoneal adhesions	1,529	1,142	387
Operations on the urinary system	4,958	2,711	2,247
Cystoscopy with or without biopsy	1,067	710	357
Operations in the male genital organs	1,142	1	1,141
Prostatectomy	823	1	822
Operations on the female genital organs	6,934	6,934	0
Oophorectomy and salpingo-oophorectomy	1,684	1,684	0
Bilateral destruction or occlusion of fallopian tubes	933	933	0
Hysterectomy	2,101	2,101	0
Obstetrical procedures	20,001	20,001	0
Episiotomy with or without forceps or vacuum extraction	1,686	1,686	0
Artificial rupture of membranes	1,227	1,227	0
Cesarean section	3,486	3,486	0
Repair of current obstetric laceration	5,552	5,552	0
Operations on the musculoskeletal system	12,704	6,672	6,032
Partial excision of bone	549	261	288
Reduction of fracture	2,306	1,292	1,014
Open reduction of fracture with internal fixation	1,716	1,006	710
Excision or destruction of intervertebral disc	1,512	718	794
Total hip replacement	775	477	298
Total knee replacement	1,260	810	450
Operations on the integumentary system	5,354	2,908	2,446
Debridement of wound, infection, or burn	1,529	647	882
Miscellaneous diagnostic and therapeutic procedures	61,475	31,052	30,423
Computerized axial tomography	1,253	717	536
Arteriography and angiocardiography using contrast material	11,153	4,381	6,772
Diagnostic ultrasound	4,371	2,359	2,012
Respiratory therapy	4,585	2,191	2,394
Insertion of endotracheal tube	2,771	1,290	1,481
Injection or infusion of cancer chemotherapeutic substance	1,035	477	558

[1]Procedure categories are defined in Appendix 2.
[2]Up to 10 procedures may be listed per discharge

.

Table 12. Most common procedures by gender and procedure category, Rhode Island, 2002

Discharges of newborn infants are excluded.

Procedures[1]	All Patients
Arteriography and angiocardiography using contrast material….	11,153
Repair of current obstetric laceration……	5,552
Removal of coronary artery obstruction……	4,905
Cardiac catheterization……..	4,693
Respiratory Therapy……..	4,585

Procedures[1]	Female
Repair of current obstetric laceration……	5,552
Arteriography and angiocardiography using contrast material….	4,381
Cesarean section……	3,486
Endoscopy of small intestine with or without biopsy……	2,366
Diagnostic ultrasound……	2,359

Procedures[1]	Male
Arteriography and angiocardiography using contrast material….	6,772
Removal of coronary artery obstruction……	3,292
Cardiac catheterization……..	2,899
Respiratory Therapy……..	2,394
Diagnostic ultrasound……	2,012

[1]Procedure categories are defined in Appendix 2.

Table 13. Number of adult cardiac procedures[1] by hospital, Rhode Island, 1999-2002

Hospital	Coronary Artery Bypass Graft[2, 3]					Percutaneous Transluminal Coronary Angioplasty[4, 5]				
	1999	2000	2001	2002	1999-2002 Average	1999	2000	2001	2002	1999-2002 Average
Miriam Hospital…….	669	607	565	548	597.3	1,136	1,290	1,308	1,501	1,308.8
Rhode Island Hospital……	590	563	571	603	581.8	840	860	1,010	952	915.5
All Hospitals……...	1,259	1,170	1,136	1,151	1,179.0	1,976	2,150	2,318	2,453	2,224.3

[1]Procedures are defined in Appendix 3.
[2]Review of literature by AHRQ indicates that above a certain volume threshold, the rate of adverse outcomes decreases. Depending on the study, this threshold is between 100 and 200 procedures per year (see Reference 7).
[3]Rhode Island regulations require existing coronary artery bypass graft surgical programs to maintain an annual utilization rate of at least 500 patients per year.
[4]Review of literature by AHRQ indicates that above a certain volume threshold, the rate of adverse outcomes decreases. Depending on the study, this threshold is between 200 and 400 procedures per year (see Reference 7).
[5]Rhode Island regulations require existing coronary angioplasty programs to maintain an annual utilization rate of at least 400 patients per year.

Table 14. Number of pediatric heart surgeries[1] by hospital, Rhode Island, 1999-2002

Hospital	Pediatric Heart Surgery[2]				
	1999	2000	2001	2002	1999-2002 Average
Rhode Island Hospital……	37	32	22	20	27.8

[1]Pediatric heart surgery is defined in Appendix 3.
[2]Review of literature by AHRQ indicates that above a certain volume threshold, the rate of adverse outcomes decreases. This threshold is 100 procedures per year (see Reference 7).

Table 15. Number of cancer-related surgical procedures[1] by hospital, Rhode Island, 1999-2002

Hospital	Esophageal Resection[2]					Pancreatic Resection[3]				
	1999	2000	2001	2002	1999-2002 Average	1999	2000	2001	2002	1999-2002 Average
Kent County……..	1	1	1	-	0.8	2	1	5	1	2.3
Landmark Medical Center..	-	-	1	-	0.3	-	1	-	-	0.3
Memorial Hospital……..	-	-	-	-	0.0	2	3	2	1	2.0
Miriam Hospital…….	-	-	1	-	0.3	4	4	2	2	3.0
Rhode Island Hospital……	6	-	-	1	1.8	8	16	12	9	11.3
Roger Williams……..	-	-	1	-	0.3	2	6	4	1	3.3
St. Joseph Health Services.	-	-	-	-	-	1	1	1	-	0.8
Westerly Hospital……...	-	-	-	-	-	1	-	-	-	0.3
All Hospitals……....	7	1	4	1	3.3	20	32	26	14	23.0

[1]Procedures are defined in Appendix 3.
[2]Review of literature by AHRQ indicates that above a certain volume threshold, the rate of adverse outcomes decreases. Depending on the study, this threshold is between 6 and 7 procedures per year (see Reference 7).
[3]Review of literature by AHRQ indicates that above a certain volume threshold, the rate of adverse outcomes decreases. Depending on the study, this threshold is between 10 and 11 procedures per year (see Reference 7).

Table 16. Number of peripheral vascular system surgical procedures[1] by hospital, Rhode Island, 1999-2002

Hospital	Abdominal Aortic Aneurysm Repair[2]					Carotid Endarterectomy[3]				
	1999	2000	2001	2002	1999-2002 Average	1999	2000	2001	2002	1999-2002 Average
Kent County……..	10	27	11	6	13.5	148	148	120	102	129.5
Landmark Medical Center..	11	7	15	14	11.8	43	31	33	60	41.8
Memorial Hospital……..	12	17	12	5	11.5	24	34	39	36	33.3
Miriam Hospital…….	39	43	43	36	40.3	121	100	113	128	115.5
Newport Hospital……...	5	3	4	2	3.5	50	31	32	23	34.0
Rhode Island Hospital……	69	52	45	52	54.5	180	186	152	193	177.8
Roger Williams……..	8	10	4	4	6.5	16	21	14	5	14.0
South County Hospital…...	6	3	6	2	4.3	20	17	18	30	21.3
St. Joseph Health Services……..	15	8	7	3	8.3	76	64	38	36	53.5
Westerly Hospital……...	11	7	5	7	7.5	21	22	41	38	30.5
All Hospitals……....	186	177	152	131	161.5	699	654	600	651	651.0

[1]Procedures are defined in Appendix 3.
[2]Review of literature by AHRQ indicates that above a certain volume threshold, the rate of adverse outcomes decreases. Depending on the study, this threshold is between 10 and 32 procedures per year (see Reference 7).
[3]Review of literature indicates that above a certain volume threshold, the rate of adverse outcomes decreases. Depending on the study, this threshold is between 50 and 101 procedures per year (see Reference 7).

Table 17. Discharges and percent distribution grouped by charge category, Rhode Island, 2002

Discharges of newborn infants are excluded.

Grouped Charges[1]	Discharges	Percent
0 - $999	946	0.8%
$1,000 - $1,999	3,893	3.1%
$2,000 - $2,999	6,236	4.9%
$3,000 - $3,999	8,605	6.8%
$4,000 - $4,999	10,429	8.3%
$5,000 - $5,999	11,056	8.8%
$6,000 - $6,999	9,403	7.4%
$7,000 - $7,999	8,299	6.6%
$8,000 - $8,999	7,214	5.7%
$9,000 - $9,999	5,957	4.7%
$10,000 - $14,999	19,212	15.2%
$15,000 - $19,999	10,822	8.6%
$20,000 - $29,999	10,924	8.7%
$30,000 - $39,999	4,871	3.9%
$40,000 - $49,999	2,791	2.2%
$50,000 - $99,999	4,277	3.4%
$100,000 plus	1,380	1.1%
Total	126,315	100.0%

[1]*Charges were missing for two discharges.*

Table 18. Hospital obstetrical utilization, Rhode Island, 2002

Hospital	Total Deliveries	Method of Delivery[1]						Cesarean Delivery Rate		Rate of Vaginal Deliveries After Previous Cesarean
		Vaginal			Cesarean					
		Total	Simple Vaginal	After Previous Cesarean	Total	Primary	After Previous Cesarean	Total	Primary	
Kent County Memorial…….	1,064	774	762	12	290	189	101	27.3%	19.9%	10.6%
Landmark Medical Center…	545	424	411	13	121	69	52	22.2%	14.4%	20.0%
Memorial Hospital……	646	491	471	20	155	103	52	24.0%	17.9%	27.8%
Newport Hospital……..	665	504	496	8	161	93	68	24.2%	15.8%	10.5%
South County Hospital……..	580	403	394	9	177	120	57	30.5%	23.3%	13.6%
Westerly Hospital……..	403	306	290	16	97	54	43	24.1%	15.7%	27.1%
Women & Infants Hospital...	9340	6,857	6,616	241	2,483	1,575	908	26.6%	19.2%	21.0%
All Hospitals[2]……	13,248	9,762	9,443	319	3,486	2,205	1,281	26.3%	18.9%	19.9%

[1]Definitions and notice of change in definitions from previous reports appear in Appendix 4.
[2]Total includes five deliveries at Rhode Island Hospital, a non-obstetrical hospital. Of the five deliveries, three were simple vaginal deliveries and two were primary cesarean deliveries.

Table 19. Hospital average length of stay[1] by type of delivery, Rhode Island, 2002

Hospital	Type of Delivery[2]	
	Vaginal	Cesarean
Kent County Memorial Hospital……..	2.2	4.1
Landmark Medical Center……...	2.2	3.9
Memorial Hospital of Rhode Island…….	2.3	3.7
Newport Hospital…….	2.3	4.0
South County Hospital…….	2.1	3.8
Westerly Hospital…….	2.0	3.5
Women & Infants Hospital of Rhode Island…	2.5	4.9
All Hospitals[3]……...	2.4 days	4.6 days

[1]Average length of stay is computed after adjusting patients admitted and discharged on the same day to a stay of one day.
[2]Definitions appear in Appendix 4.
[3]Includes five deliveries at Rhode Island Hospital; three vaginal deliveries with an average length of stay of 2.0 days and two cesarean deliveries with an average length of stay of 12.5 days.

Table 20. Hospital discharges with first-listed diagnosis of injury[1] by external cause of injury, Rhode Island, 2002

Discharges of newborn infants are excluded.

External Cause of Injury[2]	Discharges	Percent
Railway…….	0	0.0%
Motor vehicle traffic…….	825	13.7%
Motor vehicle non-traffic…….	78	1.3%
Other road vehicle…….	66	1.1%
Water transport……..	8	0.1%
Air transport……..	3	0.1%
Other vehicle…….	3	0.1%
Poisoning……..	166	2.8%
Medical and surgical misadventure……...	54	0.9%
Falls……...	3,071	50.9%
Fire……	45	0.8%
Natural and environmental factors……	56	0.9%
Submersion and suffocation……..	78	1.3%
Other unintentional……	521	8.6%
Late effects……	23	0.4%
Adverse drug reaction…...……	29	0.5%
Self-inflicted……..	496	8.2%
Assault……...	267	4.4%
Legal intervention…….	5	0.1%
Undetermined intent……..	88	1.5%
War……	1	0.0%
External cause of injury not reported……	153	2.5%
All injuries…….	6,036	100.0%

[1]Includes discharges with a first-listed diagnosis ICD-9-CM codes 800-904, 910-994, 995.5, 995.81.

[2]Definitions of external cause of injury categories appear in Appendix 5.

REFERENCES

1. DeFrances, Carol J., Hall, Margaret J. 2002 National Hospital Discharge Survey, Advanced Data from Vital and Health Statistics; No. 342. Hyattsville, MD: National Center for Health Statistics, 2004. http://www.cdc.gov/nchs/data/ad/ad342.pdf

2. Public Health Service and Health Care Financing Administration. *International Classification of Diseases, 9th Revision, Clinical Modification, 3rd ed*. Washington: Public Health Service, 1989.

3. American Hospital Association: A Guide to United States Hospitals, Health Care Systems, Networks, Alliances, Health Organizations, Agencies, and Providers 2002. Chicago: Health Forum, LLC, 2003.

4. Cryan, B. Center for Health Data and Analysis, Rhode Island Department of Health. 401/222-5123.

5. Rules and Regulations for Determination of Need for New Health Care Equipment and New Institutional Health Services (R23-15-CON), State of Rhode Island and Providence Plantations, Department of Health, June 1979, amended January 2002.

6. Birkmeyer, JD, et al. (2003). Surgeon Volume and Operative Mortality in the United States, *New England Journal of Medicine*, 349: 2117-27.

7. *AHRQ Quality Indicators—Guide to Inpatient Quality Indicators: Quality of Care in Hospitals—Volume, Mortality, and Utilization*. Rockville, MD: Agency for Healthcare Research and Quality, 2002. Revision 2 (September 4, 2003). AHRQ Pub. No. 02-RO204. http://www.qualityindicators.ahrq.gov/archives/iqi/iqi_guide_rev2.pdf

8. The Leapfrog Group for Patient Safety. Factsheet: Evidence-Based Hospital Referral. http://www.leapfrog.org/media/file/Leapfrog-Evidence-based_Hospital_Referral_Fact_Sheet.PDF

Appendix 1: Diagnostic groupings and code numbers based on the *International Classification of Diseases, 9th Revision, Clinical Modification (ICD-9-CM)*[1]

First-Listed Diagnosis[2]	Code numbers
Infectious and parasitic diseases	001-139
Septicemia	038
Neoplasms	140-239
Malignant neoplasms	140-208, 230-234
Malignant neoplasm of large intestine and rectum	153-154, 197.5
Malignant neoplasm of trachea, bronchus, and lung	162, 176.4, 197.0, 197.3
Malignant neoplasm of the breast	174-175, 198.81
Benign neoplasms	210-229
Endocrine, nutritional, and metabolic diseases, and immunity disorders	240-279
Diabetes mellitus	250
Volume depletion	276.5
Diseases of the blood and blood-forming organs	280-289
Mental disorders[3]	290-319
Psychoses	290-299
Alcohol dependence syndrome	303
Diseases of the nervous system and sense organs	320-389
Diseases of the circulatory system	390-459
Heart disease	391-392.0, 393-398, 402, 404, 410-416, 420-429
Acute myocardial infarction	410
Coronary atherosclerosis	414.0
Other ischemic heart disease	411-413, 414.1-414.9
Cardiac dysrhythmias	427
Congestive heart failure	428
Cerebrovascular disease	430-438
Diseases of the respiratory system	460-519
Acute bronchitis and bronchiolitis	466
Pneumonia	480-486
Chronic bronchitis	491
Asthma	493
Diseases of the digestive system	520-579
Appendicitis	540-543
Noninfectious enteritis and colitis	555-558
Diverticula of intestine	562
Cholelithiasis	574
Diseases of the genitourinary system	580-629
Calculus of kidney and ureter	592
Complications of pregnancy, childbirth, and the puerperium	630-677
Females with deliveries	640-648[3], 650, 651-676[3]
Diseases of the skin and subcutaneous tissue	680-709
Cellulitis and abscess	681-682
Diseases of the musculoskeletal system and connective tissue	710-739
Osteoarthrosis and allied disorders	715
Intervertebral disc disorders	722
Congenital anomalies	740-759
Certain conditions originating in the perinatal period	760-779
Symptoms, signs, and ill-defined conditions	780-799
Injury and poisoning	800-999
Fractures, all sites	800-829
Fracture of neck of femur	820
Poisonings	960-989
Supplementary classifications	V01-V82

[1]See Reference 2.
[2]See Reference 1.
[3]With fifth digit of "1" or "2".

Appendix 2: Procedure categories and code numbers based on the *International Classification of Diseases, 9th Revision, Clinical Modification (ICD-9-CM)*[1]

Procedures[2]	Code numbers
Operations on the nervous system	01-05
Spinal tap	03.31
Operations on the endocrine system	06-07
Operations on the eye	08-16
Operations on the ear	18-20
Operations on the nose, mouth, and pharynx	21-29
Operations on the respiratory system	30-34
Bronchoscopy with or without biopsy	33.21-33.24, 33.27
Operations on the cardiovascular system	35-39
Balloon angioplasty of coronary artery or coronary atherectomy	36.01-36.02, 36.05
Insertion of coronary artery stent(s)	36.06-36.07
Coronary artery bypass graft	36.1
Cardiac catheterization	37.21-37.23
Insertion, replacement, removal, and revision of pacemaker leads or device	37.7-37.8
Hemodialysis	39.95
Operations on the hemic and lymphatic system	40-41
Operations on the digestive system	42-54
Endoscopy of small intestine with or without biopsy	45.11-45.14, 45.16
Endoscopy of large intestine with or without biopsy	45.21-45.25
Partial excision of large intestine	45.7
Appendectomy, excluding incidental	47.0
Cholecystectomy	51.2
Lysis of peritoneal adhesions	54.5
Operations on the urinary system	55-59
Cystoscopy with or without biopsy	57.31-57.33
Operations in the male genital organs	60-64
Prostatectomy	60.2-60.6
Operations on the female genital organs	65-71
Oophorectomy and salpingo-oophorectomy	65.3-65.6
Bilateral destruction or occlusion of fallopian tubes	66.2-66.3
Hysterectomy	68.3-68.7, 68.9
Obstetrical procedures	72-75
Episiotomy with or without forceps or vacuum extraction	72.1, 72.21, 72.31, 72.71, 73.6
Artificial rupture of membranes	73.0
Medical induction of labor	73.4
Cesarean section	74.0-74.2, 74.4, 74.99
Repair of current obstetric laceration	75.5-75.6
Operations on the musculoskeletal system	76-84
Partial excision of bone	76.2-76.3, 77.6-77.8
Reduction of fracture	76.7, 79.0-79.3
Open reduction of fracture with internal fixation	79.3
Excision or destruction of intervertebral disc	80.5
Total hip replacement	81.51
Total knee replacement	81.54
Operations on the integumentary system	85-86
Debridement of wound, infection, or burn	86.22, 86.28
Miscellaneous diagnostic and therapeutic procedures and new technologies	87-99, 00
Computerized axial tomography	87.03, 87.41, 87.71, 88.01, 88.38
Arteriography and angiocardiography using contrast material	88.4-88.5
Diagnostic ultrasound	88.7
Physical therapy procedures	93.1-93.3
Respiratory therapy	93.9, 96.7
Insertion of endotracheal tube	96.04
Transfusion of blood and blood components	99.0
Injection or infusion of cancer chemotherapeutic substance	99.25

[1] *See Reference 2.*
[2] *See Reference 1.*

Appendix 3: Agency for Healthcare Research and Quality definitions[1] of selected surgical procedures based on the *International Classification of Diseases, 9th Revision, Clinical Modification (ICD-9-CM)*[2]

For ICD-9-CM codes introduced after October 1995, the date of introduction is indicated after the code label. For example, "OCT96-" indicates the ICD-9-CM code was introduced in October 1996.

Procedure Volume Indicators

Esophageal Resection Volume (IQI 1)

Discharges with ICD-9-CM codes of 4240 through 4242 in any procedure field and a diagnosis code of esophageal cancer in any field.

ICD-9-CM esophageal resection procedure codes:

4240	ESOPHAGECTOMY NOS
4241	PARTIAL ESOPHAGECTOMY
4242	TOTAL ESOPHAGECTOMY

ICD-9-CM esophageal cancer diagnosis codes:

1500	MAL NEO CERVICAL ESOPHAG	1504	MAL NEO MIDDLE 3RD ESOPH
1501	MAL NEO THORACIC ESOPHAG	1505	MAL NEO LOWER 3RD ESOPH
1502	MAL NEO ABDOMIN ESOPHAG	1508	MAL NEO ESOPHAGUS NEC
1503	MAL NEO UPPER 3RD ESOPH	1509	MAL NEO ESOPHAGUS NOS

Exclude:

MDC 14 (pregnancy, childbirth, and puerperium) and MDC 15 (newborns and other neonates).

Pancreatic Resection Volume (IQI 2)

Discharges with ICD-9-CM codes of 526 or 527 in any procedure field and a diagnosis code of pancreatic cancer in any field.

ICD-9-CM pancreatic resection procedure codes:

526	TOTAL PANCREATECTOMY
527	RAD PANCREATICODUODENECT

ICD-9-CM pancreatic cancer diagnosis codes:

1520	MALIGNANT NEOPL DUODENUM	1572	MAL NEO PANCREAS TAIL
1561	MAL NEO EXTRAHEPAT DUCTS	1573	MAL NEO PANCREATIC DUCT
1562	MAL NEO AMPULLA OF VATER	1574	MAL NEO ISLET LANGERHANS
1570	MAL NEO PANCREAS HEAD	1578	MALIG NEO PANCREAS NEC
1571	MAL NEO PANCREAS BODY	1579	MALIG NEO PANCREAS NOS

Exclude:

MDC 14 (pregnancy, childbirth, and puerperium) and MDC 15 (newborns and other neonates).

Appendix 3 (Continued)

Pediatric Heart Surgery Volume (IQI 3)

Discharges with ICD-9-CM codes for specified heart surgery (1P) in any field or for any heart surgery (2P) plus a diagnosis code of hypoplastic left heart syndrome (1D) in any field.

Age less than 18 years.

Specified heart surgery (1P)

ICD-9-CM procedure codes:

3500	CLOSED VALVOTOMY NOS	3552	PROS REPAIR ATRIA DEF-CL
3501	CLOSED AORTIC VALVOTOMY	3553	PROST REPAIR VENTRIC DEF
3502	CLOSED MITRAL VALVOTOMY	3554	PROS REP ENDOCAR CUSHION
3503	CLOSED PULMON VALVOTOMY	3560	GRFT REPAIR HRT SEPT NOS
3504	CLOSED TRICUSP VALVOTOMY	3561	GRAFT REPAIR ATRIAL DEF
3510	OPEN VALVULOPLASTY NOS	3562	GRAFT REPAIR VENTRIC DEF
3511	OPN AORTIC VALVULOPLASTY	3563	GRFT REP ENDOCAR CUSHION
3512	OPN MITRAL VALVULOPLASTY	3570	HEART SEPTA REPAIR NOS
3513	OPN PULMON VALVULOPLASTY	3571	ATRIA SEPTA DEF REP NEC
3514	OPN TRICUS VALVULOPLASTY	3572	VENTR SEPTA DEF REP NEC
3520	REPLACE HEART VALVE NOS	3573	ENDOCAR CUSHION REP NEC
3521	REPLACE AORT VALV-TISSUE	3581	TOT REPAIR TETRAL FALLOT
3522	REPLACE AORTIC VALVE NEC	3582	TOTAL REPAIR OF TAPVC
3523	REPLACE MITR VALV-TISSUE	3583	TOT REP TRUNCUS ARTERIOS
3524	REPLACE MITRAL VALVE NEC	3584	TOT COR TRANSPOS GRT VES
3525	REPLACE PULM VALV-TISSUE	3591	INTERAT VEN RETRN TRANSP
3526	REPLACE PULMON VALVE NEC	3592	CONDUIT RT VENT-PUL ART
3527	REPLACE TRIC VALV-TISSUE	3593	CONDUIT LEFT VENTR-AORTA
3528	REPLACE TRICUSP VALV NEC	3594	CONDUIT ARTIUM-PULM ART
3531	PAPILLARY MUSCLE OPS	3595	HEART REPAIR REVISION
3532	CHORDAE TENDINEAE OPS	3598	OTHER HEART SEPTA OPS
3533	ANNULOPLASTY	3599	OTHER OP ON HRT VALVES
3534	INFUNDIBULECTOMY	3835	THOR VESSEL RESECT/ANAST
3535	TRABECUL CARNEAE CORD OP	3845	RESECT THORAC VES W REPL
3539	TISS ADJ TO VALV OPS NEC	3885	OCCLUDE THORACIC VES NEC
3541	ENLARGE EXISTING SEP DEF	390	SYSTEMIC-PULM ART SHUNT
3542	CREATE SEPTAL DEFECT	3921	CAVAL-PULMON ART ANASTOM
3550	PROSTH REP HRT SEPTA NOS	3959	REPAIR OF VESSEL NEC
3551	PROS REP ATRIAL DEF-OPN		

Or any heart surgery (2P)

ICD-9-CM procedure codes:

0050	IMPL CRT PACEMAKER SYS OCT02-	3732	HEART ANEURYSM EXCISION
0051	IMPL CRT DEFIBRILLAT SYS OCT02-	3733	EXC/DEST OTH HRT LESION
0052	IMP/REP LEAD LF VEN SYS OCT02-	3734	CATH ABLATION LES HEART
0053	IMP/REP CRT PACEMAKR GEN OCT02-	3735	PARTIAL VENTRICULECTOMY OCT97-
0054	IMP/REP CRT DEFIB GENAT OCT02-	374	HEART & PERICARD REPAIR
3601	PTCA-1 VES/ATH W/O AGENT	375	HEART TRANSPLANTATION
3602	PTCA-1 VES/ATH W AGENT	3761	PULSATION BALLOON IMPLAN
3603	OPEN CORONRY ANGIOPLASTY	3762	IMPLANT HRT ASST SYS NEC
3604	INTRCORONRY THROMB INFUS	3763	REPLACE HRT ASSIST SYST

Appendix 3 (Continued)

Pediatric Heart Surgery Volume (IQI 3)

3605	PTCA-MULTIPLE VESSEL/ATH
3606	INSERT OF COR ART STENT OCT95-
3607	INS DRUG-ELUT CORONRY ST OCT02-
3609	REM OF COR ART OBSTR NEC
3610	AORTOCORONARY BYPASS NOS
3611	AORTOCOR BYPAS-1 COR ART
3612	AORTOCOR BYPAS-2 COR ART
3613	AORTOCOR BYPAS-3 COR ART
3614	AORTCOR BYPAS-4+ COR ART
3615	INT MAM-COR ART BYPASS
3616	INT MAM-COR ART BYPASS
3617	ABD-CORON ARTERY BYPASS OCT96-
3619	HRT REVAS BYPS ANAS NEC
362	ARTERIAL IMPLANT REVASC
363	HEART REVASCULARIZAT NEC OCT98-
3631	OPEN CHEST TRANS REVASC OCT98-
3632	OTH TRANSMYO REVASCULAR OCT98-
3639	OTH HEART REVASCULAR OCT98-
3691	CORON VESS ANEURYSM REP
3699	HEART VESSEL OP NEC
370	PERICARDIOCENTESIS
3710	INCISION OF HEART NOS
3711	CARDIOTOMY
3712	PERICARDIOTOMY
3721	RT HEART CARDIAC CATH
3722	LEFT HEART CARDIAC CATH
3723	RT/LEFT HEART CARD CATH
3724	PERICARDIAL BIOPSY
3725	CARDIAC BIOPSY
3726	CARDIAC ELECTROPHY STIM
3727	CARDIAC MAPPING
3728	INTRACARDIAC ECHOCARDIO OCT02-
3729	HRT/PERICAR DX PROC NEC
3731	PERICARDIECTOMY
3764	REMOVE HEART ASSIST SYS
3765	IMP EXT PUL HRT ASST SYS OCT95-
3766	IMP IMP PUL HRT ASST SYS OCT95-
3767	IMP CARDIOMYOSTIMUL SYS OCT98-
3770	INT INSERT PACEMAK LEAD
3771	INT INSERT LEAD IN VENT
3772	INT INSER LEAD ATRI-VENT
3773	INT INSER LEAD IN ATRIUM
3774	INT OR REPL LEAD EPICAR
3775	REVISION OF LEAD
3776	REPL TV ATRI-VENT LEAD
3777	REMOVAL OF LEAD W/O REPL
3778	INSER TEMP PACEMAKER SYS
3779	REVIS OR RELOCATE POCKET
3780	INT OR REPL PERM PACEMKR
3781	INT INSERT 1-CHAM, NON
3782	INT INSERT 1-CHAM, RATE
3783	INT INSERT DUAL-CHAM DEV
3785	REPL PACEM W 1-CHAM, NON
3786	REPL PACEM 1-CHAM, RATE
3787	REPL PACEM W DUAL-CHAM
3789	REVISE OR REMOVE PACEMAK
3791	OPN CHEST CARDIAC MASSAG
3792	INJECTION INTO HEART
3793	INJECTION INTO PERICARD
3794	IMPLT/REPL CARDDEFIB TOT
3795	IMPLT CARDIODEFIB LEADS
3796	IMPLT CARDIODEFIB GENATR
3797	REPL CARDIODEFIB LEADS
3798	REPL CARDIODEFIB GENRATR
3799	OTHER HEART/PERICARD OPS

with only hypoplastic left heart syndrome (1D)
ICD-9-CM diagnosis code:

7467	HYPOPLAS LEFT HEART SYND

Exclude:

- MDC 14 (pregnancy, childbirth, and puerperium).
- Patients who underwent PDA ligation as a single cardiac procedure (diagnosis code 7470 [2D] and procedure code 3885 [3P]):

ICD-9-CM procedure code (3P), if single procedure:

3885	OCCLUDE THORACIC VES NEC*

Appendix 3 (Continued)

Pediatric Heart Surgery Volume (IQI 3)

with ICD-9-CM diagnosis code (2D):

7470	PATENT DUCTUS ARTERIOSUS

- Patients with prosthetic closures of atrial septal defects (procedure codes 3551, 3552, 3571) or ventricular septal defects (codes 3553, 3572) or atrial septal enlargement (3541 [4P]) without concomitant use of cardiopulmonary bypass (code 3961 [5P]):

ICD-9-CM procedure codes (4P):

3541	ENLARGE EXISTING SEP DEF#	3553	PROST REPAIR VENTRIC DEF#
3542	CREATE SEPTAL DEFECT	3571	ATRIA SEPTA DEF REP NEC#
3551	PROS REP ATRIAL DEF-OPN#	3572	VENTR SEPTA DEF REP NEC#
3552	PROS REPAIR ATRIA DEF-CL#		

without cardiopulmonary bypass (5P)
ICD-9-CM procedure code:

3961	EXTRACORPOREAL CIRCULAT

- Patients with PDA closure as a single cardiac procedure (procedure code 3885 [3P]) with concomitant cardiac catheterization (codes 3721, 3722, 3723, 8842, 8843 [6P]):

ICD-9-CM procedure code (3P), if single procedure:

3885	OCCLUDE THORACIC VES NEC*

with cardiac catheterization (6P)
ICD-9-CM procedure codes:

3721	RT HEART CARDIAC CATH	8842	CONTRAST AORTOGRAM
3722	LEFT HEART CARDIAC CATH	8843	CONTR PULMON ARTERIOGRAM
3723	RT/LEFT HEART CARD CATH		

- Patients with occlusion of thoracic vessel (procedure code 3885 [3P]) without congenital heart defect (diagnosis codes 7450 through 7479 [3D]):

ICD-9-CM procedure code (3P):

3885	OCCLUDE THORACIC VES NEC*

without congenital heart defect (3D)
ICD-9-CM diagnosis codes:

7450	COMMON TRUNCUS	74684	OBSTRUCT HEART ANOM NEC
74510	COMPL TRANSPOS GREAT VES	74685	CORONARY ARTERY ANOMALY
74511	DOUBLE OUTLET RT VENTRIC	74686	CONGENITAL HEART BLOCK
74512	CORRECT TRANSPOS GRT VES	74687	MALPOSITION OF HEART
74519	TRANSPOS GREAT VESS NEC	74689	CONG HEART ANOMALY NEC
7452	TETRALOGY OF FALLOT	7469	CONG HEART ANOMALY NOS

Pediatric Heart Surgery Volume (IQI 3)

7453	COMMON VENTRICLE
7454	VENTRICULAR SEPT DEFECT
7455	SECUNDUM ATRIAL SEPT DEF
74560	ENDOCARD CUSHION DEF NOS
74561	OSTIUM PRIMUM DEFECT
74569	ENDOCARD CUSHION DEF NEC
7457	COR BILOCULARE
7458	SEPTAL CLOSURE ANOM NEC
7459	SEPTAL CLOSURE ANOM NOS
74600	PULMONARY VALVE ANOM NOS
74601	CONG PULMON VALV ATRESIA
74602	CONG PULMON VALVE STENOS
74609	PULMONARY VALVE ANOM NEC
7461	CONG TRICUSP ATRES/STEN
7462	EBSTEIN'S ANOMALY
7463	CONG AORTA VALV STENOSIS
7464	CONG AORTA VALV INSUFFIC
7465	CONGEN MITRAL STENOSIS
7466	CONG MITRAL INSUFFICIENC
7467	HYPOPLAS LEFT HEART SYND
74681	CONG SUBAORTIC STENOSIS
74682	COR TRIATRIATUM
74683	INFUNDIB PULMON STENOSIS
7470	PATENT DUCTUS ARTERIOSUS
74710	COARCTATION OF AORTA
74711	INTERRUPT OF AORTIC ARCH
74720	CONG ANOM OF AORTA NOS
74721	ANOMALIES OF AORTIC ARCH
74722	AORTIC ATRESIA/STENOSIS
74729	CONG ANOM OF AORTA NEC
7473	PULMONARY ARTERY ANOM
74740	GREAT VEIN ANOMALY NOS
74741	TOT ANOM PULM VEN CONNEC
74742	PART ANOM PULM VEN CONN
74749	GREAT VEIN ANOMALY NEC
7475	UMBILICAL ARTERY ABSENCE
74760	UNSP PRPHERL VASC ANOMAL
74761	GSTRONTEST VESL ANOMALY
74762	RENAL VESSEL ANOMALY
74763	UPR LIMB VESSEL ANOMALY
74764	LWR LIMB VESSEL ANOMALY
74769	OTH SPCF PRPH VSCL ANOML
74781	CEREBROVASCULAR ANOMALY
74782	SPINAL VESSEL ANOMALY
74783	PERSISTENT FETAL CIRC OCT02-
74789	CIRCULATORY ANOMALY NEC
7479	CIRCULATORY ANOMALY NOS

Abdominal Aortic Aneurysm (AAA) Repair Volume (IQI 4)

Discharges with ICD-9-CM codes of 3834, 3844, or 3864 in any procedure field and a diagnosis of AAA in any field.

ICD-9-CM AAA procedure codes:

3834	AORTA RESECTION & ANAST
3844	RESECT ABDM AORTA W REPL
3864	EXCISION OF AORTA

ICD-9-CM AAA diagnosis codes:

4413	RUPT ABD AORTIC ANEURYSM
4414	ABDOM AORTIC ANEURYSM

Exclude:

MDC 14 (pregnancy, childbirth, and puerperium) and MDC 15 (newborns and other neonates).

Appendix 3 (Continued)

Coronary Artery Bypass Graft (CABG) Volume (IQI 5)

Discharges with ICD-9-CM codes of 3610 through 3619 in any procedure field.

Age 40 years and older.

ICD-9-CM CABG procedure codes:

3610	AORTOCORONARY BYPASS NOS	3615	1 INT MAM-COR ART BYPASS
3611	AORTOCOR BYPAS-1 COR ART	3616	2 INT MAM-COR ART BYPASS
3612	AORTOCOR BYPAS-2 COR ART	3617	ABD-CORON ART BYPASS OCT96-
3613	AORTOCOR BYPAS-3 COR ART	3619	HRT REVAS BYPS ANAS NEC
3614	AORTCOR BYPAS-4+ COR ART		

Exclude:

MDC 14 (pregnancy, childbirth, and puerperium) and MDC 15 (newborns and other neonates).

Percutaneous Transluminal Coronary Angioplasty (PTCA) Volume (IQI 6)

Discharges with ICD-9-CM codes of 3601, 3602, 3605, or 3606 in any procedure field.

Age 40 years and older.

ICD-9-CM PTCA procedure codes:

3601	PTCA-1 VESSEL W/O AGENT
3602	PTCA-1 VESSEL WITH AGNT
3605	PTCA-MULTIPLE VESSEL
3606	INSERT OF COR ART STENT OCT95-

Exclude:

MDC 14 (pregnancy, childbirth, and puerperium) and MDC 15 (newborns and other neonates).

Appendix 3 (Continued)

Carotid Endarterectomy Volume (IQI 7)
Discharges with an ICD-9-CM code of 3812 in any procedure field. ICD-9-CM carotid endarterectomy procedure code: 3812 HEAD & NECK ENDARTER NEC Exclude: MDC 14 (pregnancy, childbirth, and puerperium) and MDC 15 (newborns and other neonates).

[1]*These definitions were extracted from Appendix A of the following document: AHRQ Quality Indicators—Guide to Inpatient Quality Indicators: Quality of Care in Hospitals—Volume, Mortality, and Utilization. Rockville, MD: Agency for Healthcare Research and Quality, 2002. Revision 2 (September 4, 2003). AHRQ Pub. No. 02-RO204.*
[2]*See Reference 2.*

Appendix 4: Obstetrical definitions and code numbers based on the *International Classification of Diseases, 9th Revision, Clinical Modification* (ICD-9-CM)[1]

1. Delivery[2]: Hospital discharges with one of the following ICD-9-CM diagnosis codes listed as a principal diagnosis or as any of 10 additional diagnoses:

    640-648* Complications Mainly Related to Pregnancy
    650 Delivery in a completely normal case
    651-659* Normal Delivery, and Other Indications for Care in Pregnancy, Labor, and Delivery
    660-669* Complications Occurring Mainly in the Course of Labor and Delivery
    670-676* Complications of the Puerperium

    * with fifth digit of 1 (delivered, with or without mention of antepartum condition) or 2 (delivered, with mention of postpartum complication)

2. Cesarean: Delivery with one of the following ICD-9-CM procedure codes listed as a principal procedure or as any of 10 additional procedures:

    74.0 Classical cesarean section
        Transperitoneal classical cesarean section
    74.1 Low cervical cesarean section
        Lower uterine segment cesarean section
    74.2 Extraperitoneal cesarean section
        Supravesical cesarean section
    74.4 Cesarean section of other specified type
        Peritoneal exclusion cesarean section
        Transperitoneal cesarean section NOS
        Vaginal cesarean section
    74.99 Other cesarean section of unspecified type
        Cesarean section NOS
        Obstetrical abdominouterotomy
        Obstetrical hysterotomy

3. Previous cesarean: Delivery with the following ICD-9-CM diagnosis code listed as a principal diagnosis or as any of 10 additional diagnoses.

    654.2 Uterine scar from previous surgery.

4. Primary cesarean: Cesarean delivery with no diagnosis of previous cesarean delivery.

5. Total cesarean delivery rate: Total number of cesarean deliveries divided by the total number of deliveries, expressed as a percentage.

6. Primary cesarean delivery rate: Number of primary cesarean deliveries divided by (total number of deliveries minus number of previous cesarean deliveries), expressed as a percentage.

7. Rate of vaginal deliveries after previous cesarean: Vaginal deliveries after previous cesarean divided by total deliveries after previous cesareans, expressed as percentage.

[1]See Reference 2.
[2]Note that this definition has changed from the definition used in hospital utilization reports 2000 and 2001, which limited cases to discharges with a principal diagnosis of delivery.

Appendix 5: Diagnostic groupings and code numbers based on the *International Classification of Diseases, 9th Revision, Clinical Modification (ICD-9-CM)*[1]

Type of Injury	Code Numbers
Railway	E800-E807
Motor vehicle traffic	E810-E819
Motor vehicle non-traffic	E820-E825
Other road vehicle	E826-E829
Water transport	E830-E838
Air transport	E840-E845
Other vehicle	E846-E848
Place of injury[2]	E849
Poisoning	E850-E869
Medical and surgical misadventure	E870-E879
Falls	E880-E888
Fire	E890-E899
Natural environmental factors	E900-E909
Submersion and suffocation	E910-E915
Other unintentional	E916-E928
Late effects	E929
Adverse drug reaction	E930-E949
Self-inflicted	E950-E959
Assault	E960-E969
Legal intervention	E970-E978
Undetermined intent	E980-E989
War	E990-E999

[1]See Reference 2.
[2]Place of injury is supplementary to an external cause of injury code in the range E850-E869 or E880-E928.

Appendix 6: Census population for Rhode Island as of July 1, 2002[1]

Age Group	Population
Under 15 Years: All…	**198,113**
Female……	96,772
Male…….…...	101,341
15-44 Years: All……...	**466,946**
Female…….	236,192
Male…….…...	230,754
45-64 Years: All……...	**252,380**
Female……	130,207
Male…….…...	122,173
65 Years and Older….	**152,286**
Female……...	91,825
Male……	60,461
All Ages……	**1,069,725**
Female……...	554,996
Male…….…..	514,729

[1]*Source: Bureau of the Census, United States Department of Commerce.*